

# EATING DISORDERS REVIEW

Current Clinical Information for the Professional Treating Eating Disorders



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## UPDATE

### Endocrine Responses to Meals in Patients with AN

Prolonged malnutrition in people with anorexia nervosa (AN) has been associated with changes in endocrine function. Kimberly P. Kinzig, PhD, and colleagues at Johns Hopkins University, Baltimore, and Case Western Reserve University, Cleveland, recently reported that among a group of patients with AN some endocrine responses to a meal were state-related and improved as nutrition improved. However, other endocrine responses did not get better after short-term refeeding. The authors measured meal-induced endocrine responses in 13 AN patients at three points during hospitalization: before refeeding (mean body mass index, or BMI, was 16.7 kg/m<sup>2</sup>); after two weeks of refeeding (mean BMI: 18.0), and after weight restoration (mean BMI: 20.3). Thirteen control subjects (BMI: 19.0-24.9) were tested once. In the 2.5-hr test sessions, blood was drawn every 15 minutes before, during, and after all the subjects ate a 700-kcal test meal. Among AN patients, leptin levels were unchanged in the first two sessions but were significantly increased at the third session, after weight was restored. In comparison to controls, peak levels of

## FDA Committee Reviews Orlistat as an Over-the-Counter Agent

By Mary K. Stein • Managing Editor

On January 23, an FDA Advisory Committee began reviewing a New Drug Application for what could be the first nonprescription weight-loss drug approved for use in the U.S. The new application was for the lipase inhibitor orlistat (Xenical®), and was submitted by GlaxoSmithKline Consumer Healthcare.

Orlistat inhibits pancreatic lipases, thus reducing intestinal absorption of dietary fat. When the capsules are taken three times a day with meals, about 25% of any fat consumed in the meal is blocked from absorption. That fat, which is the equivalent of about 150 to 200 calories, is then excreted in the stool. The drug is designed for patients who are at least 30% above their ideal weight, or who have a body mass index (BMI) of 30 kg/m<sup>2</sup> or more.

The recommended dosage is 120 mg at each main meal that contains fat. Because orlistat works by blocking the absorption of dietary fat, it usually produces some changes in bowel habits, including oily spotting of the rectum, flatulence, fecal urgency, and for some, fecal incontinence. And, because the drug interferes with the body's absorption of some fat-soluble vitamins, patients are advised to take a daily multivitamin supplement that contains vitamins D, E,

K, and beta-carotene.

GlaxoSmithKline Consumer Healthcare has said that providing a half-dose version of the drug, or doses of 60 mg, could promote weight loss in overweight adults when combined with a reduced calorie, low-fat diet and a suggested exercise regimen. Cutting the dosage in half would also lessen the unpleasant gastrointestinal effects that have made patients stop taking the drug.

The over-the-counter product will be named Alli. Glaxo estimates that 5 to 6 million adult Americans could buy the pills, which would cost from \$12 to \$25 per week.

The company has also said that making the drug available without a prescription will make it easier for overweight Americans to seek treatment for obesity. While numerous dietary supplements, including herbal preparations and other products, are available without prescription, there is as yet no FDA-approved nonprescription treatment for obesity. Orlistat's main rival is Meridia®, produced by Abbott Laboratories; this product acts by suppressing appetite.

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Orlistat in 120-mg capsule form will remain a prescription drug for those who should be treated under the care of a physician.

Several of the advisory board members have been concerned that some consumers may not be able to tell whether Alli is safe for them, and questioned its efficacy, noting that most people who take the drug regain weight once they stop using the drug.

**Precautions for those with eating disorders**

Orlistat is currently not recommended for use by patients with anorexia nervosa or bulimia nervosa. Glaxo representatives have reported that there is a very low potential for abuse or misuse of the nonprescription form of the drug, since there have been only 4 published reports of bulimics misusing the drug, while more than 22 million people worldwide have taken it.

In contrast, some researchers have pointed out that at least some eating disorders patients in the community are likely to abuse Alli just as they abuse laxatives, regardless of how the product label and patient information inserts may warn of this. Other patients also will not take supplemental vitamins and may develop deficiencies of fat-soluble vitamins—again, regardless of the warnings on the label.

**Abuse among patients with bulimia nervosa**

Three cases have demonstrated how patients can abuse orlistat. Physicians at University Hospital of Bellvitge, Barcelona, Spain, reported two cases of misuse of orlistat in two normal-weight women who used orlistat as a purging mechanism after binge-eating episodes (*Int J Eat Disord* 2002;30:458).

In both cases, the women had begun binge eating and purging in adolescence. From the beginning, both women had used a restrictive diet, binge eating, and purging (vomiting and using laxatives). Both women misused orlistat as their only purging mechanism after every binge episode. The authors concluded that although bulimia nervosa patients have used many substances and bizarre behaviors as purging mechanisms after binge eating, these were the first re-

ported cases of use of orlistat as the sole purging mechanism.

In another study, Drs. Shisuka Malhotra and Susan L. McElroy reported a case of a patient who used orlistat as a weight-loss behavior to compensate for binge eating (*Am J Psychiatry* 2002;159:492). The patient was a 49-year-old woman who enrolled in a weight management program for extreme obesity. She weighed 287 lb and had a body mass index of 45 kg/m<sup>2</sup>. At the first assessment she met *DSM-IV* criteria for bulimia nervosa, purging type, and also major depressive disorder, which was diagnosed through a structured interview.

The patient's binge eating began at 9 years of age; she weighed 140 lb by age 10. Her binge eating and weight gain continued throughout high school and college. By the time she was 25, she was binge eating once or twice a day and weighed 206 lb. She took laxatives to relieve her 'feeling of fullness' once or twice a month but at this time did not use regular compensatory weight-loss behaviors.

The patient had tried nine weight loss programs and two over-the-counter appetite suppressants over several years. One year before enrolling in the authors' obesity treatment program, she had begun using orlistat, 120 mg three times a day, as prescribed by her internist. Although she continued to binge eat 4 or 5 times a week, she lost 45 lb after 6 months. Because of financial problems, she stopped taking the drug and regained all the lost weight within 4 months.

She began ordering orlistat over the Internet, and used the drug only during binge-eating episodes in order to save money. When she came to the program, she had lost 5 lb in 2 months. However, now she was binge eating 4 to 7 times a week, using orlistat during every binge. She had 4 to 7 bowel movements a day, moderate-to-severe fecal urgency, oily rectal spotting, and flatulence after every binge episode. She began avoiding most social situations because of the drug's side effects. The authors suggested that the drug might be reinforcing her binge eating and suggested that it be discontinued; the patient was reluctant to stop taking it,

it helped prevent weight gain.

According to the authors, although the medication did help regulate the patient's obesity, it did not help her binge eating or depression. They note that this case raises the importance of assessing psychiatric conditions (especially mood and eating disorders) among persons seeking treatment of weight loss.

### **Is orlistat an option for treating binge-eating disorder?**

As many as half of people who participate in weight-loss programs have signs of binge eating disorder (BED). Until recently, people with BED have been excluded from orlistat treatment programs in the past.

A group at University Hospital, Geneva, Switzerland, headed by Dr. Alain Golay and assessed the efficacy of orlistat in 89 obese patients with BED (*Obes Res* 2005;13:1701). All patients had clinically diagnosed BED and body mass indexes greater than 30 kg/m<sup>2</sup>. (One of the investigators was employed by Roche Pharmaceuticals, the original parent company.) In a double-blind study, the patients were randomized to 24 weeks of treatment with 120 mg orlistat or placebo, three times a day. They were also placed on a mildly reduced-calorie diet.

### **Greater weight loss was reported in the orlistat group**

After 24 weeks, the mean weight loss for those in the orlistat treatment group was significantly greater than for patients receiving placebo: -7.4% vs. -2.3%, respectively. Also, the overall Eating Disorder Inventory-2 score at 24 weeks was significantly lower in patients treated with orlistat than those in the placebo group. The authors concluded that orlistat can be considered part of the management program for obese patients with BED.

### **Panel requests follow-up studies**

If Alli is approved and does reach the market as an over-the-counter product, the FDA panel has requested that Glaxo conduct follow-up studies. They also requested that the company redesign the product label to ensure that it will be used properly and to include proper warnings for consumers.

## **The Instability of Eating Disorder Diagnoses**

Eating disorders diagnoses may fluctuate far more than one might suspect, according to results of a recent prospective study by Dr. Christopher G. Fairburn and colleagues at Oxford University and University Hospital, Zurich. In this study, two-thirds of patients originally diagnosed with a specific eating disorder had a different eating disorder diagnosis 30 months later (*Br J Psychiatry* 2005;187:573).

A sample of 192 women with current DSM-IV eating disorders (55 with anorexia nervosa [AN], 108 with bulimia nervosa [BN], and 29 with an eating disorder not otherwise specified [EDNOS]), were interviewed three times over 30 months.

### **Migration between diagnoses**

Although remission from an eating disorder was uncommon, migration between the eating disorder diagnoses occurred in more than half of the study participants. Sixty-two women, or 53%, crossed over from one eating disorder diagnosis to another. This migration was evident in all three groups. Thus, of the 55 women initially diagnosed with AN, only 31 (56%) retained the diagnosis at 12 months and just 27 (49%) still had the diagnosis at 30 months. Twenty-three women with an initial diagnosis of AN (48%) retained this diagnosis at both reassessments.

Change in diagnosis was even more evident among those with BN. Of the 108 participants with BN at baseline, only 55 (51%) had this diagnosis at the first reassessment and just 40 (37%) had it at the second assessment. Those with EDNOS also had changing diagnoses. Of the 29 women with EDNOS at baseline, just 8 (28%) still had the diagnosis at 12 months and 9 (31%) at 30 months. Only 3 (10%) had EDNOS at both reassessments.

### **Purging behavior**

At all three assessment points, participants' diagnoses were classified as either purging or non-purging, using the DSM-IV threshold frequency of purging behavior (vomiting or use of laxatives) at least twice a week. At

baseline, 58 (30.2%) of diagnoses were classified as non-purging and 134 (69.8%) as purging.

After excluding the 25 women who had stable remissions (no eating disorder diagnosis at both follow-up assessments), analyses showed that 65 of 121 participants with a baseline purging eating disorder (53.7%) had been given a non-purging diagnosis. Of 46 participants with a non-purging diagnosis at baseline, 8 (17.4%) subsequently had a purging diagnosis.

### **Conclusions**

There were three main conclusions to the study. First, diagnostic stability was low. Second, stable remission rates were low across all three diagnostic categories, and only 13% of patients had stable remissions. According to the authors, the third finding was the most striking: The overarching diagnosis of an "eating disorder" was relatively stable, while there was considerable change between the three specific eating disorder diagnoses. More than half of the women had a different diagnosis at the end of the 30 months. AN was the most stable diagnosis, followed by BN and EDNOS.

According to Dr. Fairburn and colleagues, the findings highlight certain limitations of the current diagnostic scheme for eating disorders. Minor changes in body weight or eating behavior can result in a person receiving an entirely different DSM-IV diagnosis. The similarities and differences between eating disorder diagnoses and the classification of eating disorders have been discussed for decades. The authors suggest that it might be better to focus upon similarities between the eating disorders categories rather than to stress their differences.

The authors also suggest examining the classification of eating disorders from the perspective of predictive validity. Finally, they suggest that their findings illustrate the clinical reality of shared but distinctive clinical features across the eating disorders, together with flux among them. This flux signifies that common biological and psychological factors may cause and maintain cases of AN, BN, and EDNOS.

# A Hormone That May Suppress Appetite and Bone Formation in AN

When patients with anorexia nervosa (AN) severely restrict food intake, severe undernutrition often develops. While the specific factors that control food intake in this population are still unknown, intake may be affected by suppression of hypothalamic appetite signals from the brain or by more complex interactions. Hormonal appetite regulators include anorexigenic peptides such as peptide YY (PYY). PYY arises from the intestines and acts via the Y2 receptor. Animal studies have shown that the Y2 receptor may regulate bone formation.

## A study of teens with anorexia nervosa

Results of a recent study of 23 patients with AN and 21 healthy adolescents 12 to 18 years of age have highlighted the possible actions of PYY in AN (*J Clin Endocrinol & Metab* 2005; 10:1878). Anne Klibanski, MD, and colleagues at Massachusetts General Hospital and Harvard Medical School hypothesized that PYY may be elevated in AN and may contribute to decreased food intake and decreased bone formation.

The adolescent girls with AN and healthy control subjects were admitted for an overnight stay at Massachusetts General Hospital. Their height and weight were measured and all had frequent sampling for growth hormone (GH), leptin and ghrelin overnight. Fasting blood samples were obtained for PYY, glucose, insulin, IGF-1, total triiodothyronine (T<sub>3</sub>), and estradiol.

Bone age was established with an x-ray of the left wrist and hand. Bone age and body composition were measured by dual energy x-ray absorptiometry (DXA). In addition, three serum markers of bone formation were measured, including osteocalcin, carboxyterminal propeptide of type 1 collagen, and bone-specific alkaline phosphatase and two urinary markers of bone resorption.

The girls kept food diaries for three weekdays and one weekend day. Subjects with AN were followed for one year and examined again at weight recovery—defined as a 10% increase in body

mass index (BMI, or kg/m<sup>2</sup>). PYY levels were available for 10 girls with AN.

## Results: patients had higher PYY levels

PYY levels were significantly higher in girls with AN than in controls. Weight recovery (defined as a 10% increase in BMI) in 10 girls with AN was associated with a trend toward decreased PYY levels. Levels of PYY were predicted by nutritional markers including BMI and fat mass and by resting energy expenditure (REE). Gonadal hormone levels and total T<sub>3</sub> levels also predicted PYY levels. At this stage in the research, it is difficult to know which came first—whether AN and starvation caused the elevation of PYY levels or if the disease was affected by the PYY levels.

According to the authors, decreased food intake in patients with AN may be a result of anorexigenic effects of high levels of PYY. The authors also found that PYY was an important predictor of most bone turnover markers. Thus, high levels of PYY were associated with low levels of these markers, suggesting that PYY may also affect bone

## Dietary Restraint and Cognitive Performance Among Children

Among adults, dietary restraint is associated with a number of unwanted consequences, including depression, social anxiety, low self-esteem, and increased risk of developing an eating disorder. Dieting is also associated with poorer performance on a range of cognitive measures, such as poorer attention span, slower reaction times, and poorer problem-solving ability.

But, is the same true for children? Psychologist Jeffrey M. Brunstrom and colleagues at Loughborough University, UK, evaluated dietary restraint and cognitive performance in 44 girls (mean age: 10.1 years). The girls completed a simple reaction time task and the Tower of London (TOL) task (*Appetite* 2005;45:235). In the first task, the girls were seated at a computer and used

the computer mouse to reach a target on the screen. In the second task, they used the mouse to move a series of blocks or pegs; the test puzzles became increasingly difficult, and the sessions were timed.

To measure dietary restraint, the researchers used the restraint scale of the Dutch Eating Behavior Questionnaire (Van Strien et al; *Int J Eat Disord* 5:747), 1986); the scale was modified to be more easily understood by children. Also, because pilot testing had shown that children could have an attention lapse when faced with computer-based tasks for a prolonged period, the authors' program alternated between computer-based tasks and questionnaire items.

## Restraint linked to longer reaction times

Children in the high-restraint group had significantly longer reaction times than did girls in the low-restraint group. The high-restraint group also took significantly longer to complete the TOL tasks than did the low-restraint group. Generally, the high-restraint group required more attempts to complete the task than the low-restraint group, although the difference was not statistically significant.

Thus, just as was noted earlier in adults, cognitive performance was poorer in girls who attempted to restrict dietary intake. According to Dr. Brunstrom and co-workers, usually reaction times shorten from infancy through childhood and slowly increase with age toward the end of the second decade of life. In the authors' study, the average reaction time of the high-restraint group was approximately 50 milliseconds longer than that of the low-restraint group. This was similar to the degree of impairment seen in an earlier study with an adult sample (Green et al.; *Physiol & Behav* 1994; 55:447).

This is the first evidence that young girls with dietary restraint suffer from the same kinds of cognitive impairment found in adult populations, according to the authors. Dr. Brunstrom and his colleagues also found what they described as a negative "robust" relationship between high dietary restraint and academic performance ( $p = 0.001$ ).

## Binge Eating Disorder: A Family Study

Binge eating disorder, or BED, is often associated with obesity. However, according to results from a multi-center family study, familial and genetic factors make BED a distinctly different form of obesity.

Dr. James Hudson and colleagues conducted a blinded family interview study of 300 overweight or obese probands with and without BED, and 888 of their first-degree relatives. The object was to assess whether BED aggregates in families, and also whether BED aggregates with other eating disorders or with major mood disorders.

As Dr. Hudson reported at the Eating Disorders Research Society meeting in Toronto last fall, BED aggregated strongly in families, independently of obesity. BED also showed little coaggregation with anorexia nervosa, bulimia nervosa, or major depressive disorder (although the authors noted that the ability to detect coaggregation with depression may have been lessened by restricting the study to obese or overweight probands). BED did coaggregate with bipolar disorder.

### Genetic factors are involved in BED

The researchers concluded that BED is a familial disorder that is attributable to factors at least partly independent of those for obesity, and partly shared with those for bipolar disorder. When these findings are combined with evidence from earlier studies of twins, it appears that BED involves some genetic factors.

## Worry and Eating Disorders

The word “worry” comes from an Old English word, *wurgen*, to strangle or choke. The key feature of worry is the prevalence of negative thoughts, and individuals who worry think a lot about, and are afraid of, possible negative effects and events.

Recently a team of Italian psychologists set out to see if people with eating disorders worry significantly more than

### *Weight Bias: Nature, Consequences and Remedies*

(Edited by Kelly D. Brownell, Rebecca M. Puhl, Marlene B. Schwartz, and Leslie Rudd. New York, NY: Guilford Press; 2005; 320 pp; hardcover; \$35.00)

Compiled by leading scholars, this welcome volume pulls together a large amount of information about the nature and extent of weight bias, and the ways in which society overtly and covertly discriminates against obese persons. From a social-psychological perspective, such discrimination isn't very surprising, since, except for the few saints in our midst, humankind seems to have a predilection to discriminate against those who appear physically deviant, especially when their appearance runs counter to what society has defined as “ideal” for a given time and place. In our culture, although obesity is clearly increasingly prevalent and, therefore, at least statistically less deviant than it was before, being fat is clearly “out,” particularly for women. Correspondingly, in most situations, “fat-ist” discrimination impacts women more than men, but men are affected as well. As laid out in the excellent chapters in this book, such bias is very prominent in the media and starts early, even among children as young as 4 to 5 years of age.

do those without eating disorders (*Eat Behav* 2005;6:301). According to the authors, this study was one of the first to investigate the association between worry levels and eating disorders. The team used the Penn State Worry Questionnaire, the Structured Clinical Interview for DSM (SCID), and the Eating Disorder Inventory (EDI) to assess 63 women with eating disorders (34 with anorexia nervosa and 29 with bulimia nervosa). Thirty normal control subjects, also women, completed the Penn State Worry Questionnaire.

### Two questions

Two questions arose. First, could the patients themselves erroneously evaluate or even conceal their bulimic behaviors? Second, could they pay more attention to weight and body image than to binge eating and purging?

In eating disorders, a pervasive worry may lead some people to focus their at-

For those seeking juicy facts and figures about weight bias, the chapters in this book provide a bounty: Studies suggest, for example, that weight accounts for about 35% of the variance in hiring, and that obese women earn roughly 3.5% to 30% less than non-obese women for comparable work. In addition, obese people experience far more negative attitudes from health professionals and other staff in health-care settings, and much more. The social origins of stigma are fully explored. The destructive costs of stigma and of its operational offspring such as teasing take major tolls on the self-esteem and self-image of the obese recipients of the overt and covert slights, slings and arrows.

What can be done? Of practical importance, legal aspects of weight discrimination are discussed in detail, as are practical approaches to combating weight bias and the stigma associated with obesity. The final chapters, which suggest strategies that may help prevent and alleviate discrimination related to weight, will be of particular interest and substantial value to the parents, educators, health-care providers and policy-makers who take up this worthwhile fight.

—J.Y

tention upon weight, food, and size and shape. These elements may be the starting points of a typical web of worries, threatening predictions, and negative thoughts. Worry about food may also be a distraction from more terrifying preoccupations about self-esteem and interpersonal relations. In this study, the correlation between worry and the EDI subscales ‘interpersonal distrust’ and ‘maturity fears’ suggested that these two topics are also objects of worry.

According to the authors, it is plausible that fearful thoughts about adulthood and feelings of distrust toward other people occupy the minds of people with eating disorders and emerge as repetitive worry. The results of this small study confirmed the association between pathological worry and eating disorders, but did not investigate the exact role worry plays in eating disorders.

# Spirituality: A Resource for Young Women at Risk of Eating Disorders

College-age women with strong spiritual and religious beliefs who are at high risk for eating disorders may turn to spirituality to help cope with their body image concerns, according to results of a recent study (*Eating Behaviors* 2005;6:293).

Dr. M. Joy Jacobs-Pilipski and colleagues at San Diego State University, Stanford University, and Washington University School of Medicine recently evaluated 255 college-age women at increased risk for eating disorders and asked them about their religious and spiritual beliefs. The women were enrolled in an Internet-delivered eating disorder prevention study.

Mood was assessed with the Center for Epidemiologic Studies Depression Scale, and coping strategies were studied with the Brief COPE (Carver, 1997), which is designed to assess coping strategies participants use when facing stressful events. Spiritual and religious beliefs and practices were assessed with a scale that was designed for this study. Participants were asked to agree or disagree with 11 statements related to their spirituality and religious practices. Those who endorsed more than half of the statements about spiritual and religious beliefs (see table, below) were considered to have strong spiritual and religious beliefs.

## How important were spirituality and religion?

According to the authors, more than half of the participants reported that spiritual and religious beliefs were not important to them. Protestant and Roman Catholic participants were more likely than other participants to report having strong spiritual and religious beliefs and practices.

Strategies used by participants to cope with concerns about body image differed significantly, based on the importance of spirituality/religion. Those who had strong spiritual and religious beliefs were significantly more likely to read spiritual materials, to pray, and to meditate than participants who reported not having strong religious and spiritual beliefs. Those with strong

spiritual and religious beliefs were also less likely to use distraction to cope with their body image distress and reported that prayer was an effective strategy of dealing with concerns about weight and shape. Participants without strong religious and spiritual beliefs were more likely to use distraction to cope with body image concerns.

The main coping strategy used by those with strong religious/spiritual beliefs was prayer. Both groups reported that exercise was the most effective strategy for coping with body image distress. Although exercise was reported to be more effective than other coping methods, including talking to friends, doing homework, or watching television, the effects were only temporary, and participants continued to have chronic weight and shape concerns.

According to the authors, spiritual and religious beliefs and practices may be an underutilized resource for coping with body image concerns, and could potentially moderate the outcome of eating disorders prevention and treatment efforts.

### Spiritual/Religious Beliefs

1. Believe in God or other higher power
2. Religious/spiritual beliefs are important
3. Seek out people from religious/spiritual community when help or support is needed
4. Find strength or comfort in faith or religious/spiritual beliefs
5. Rely on higher power or religious/spiritual beliefs to make sense of situations and to decide what to do
6. Attend religious services because of the people who are there
7. Carry over religious beliefs into other dealings in life
8. Regular prayer
9. Regular meditation
10. Regular attendance at religious/spiritual services
11. Regular study of religious/spiritual material

# Dermatologic Signs Can Point to Disordered Eating

The skin provides a helpful and useful mirror of the medical consequences of starvation, vomiting, and abuse of drugs (particularly laxatives and diuretics), according to Dr. R. Strumia, of University Hospital, Ferrara, Italy, who notes that some characteristic skin conditions can help uncover underlying eating disorders (*Am J Clin Dermatol* 2005; 6:165).

According to Dr. Strumia, dermatologic signs of eating disorders include abnormally dry skin (xerosis), lanugo-like body hair (long, fine hair on the body), hair loss (telogen effluvium), yellowness of the skin from eating large amounts of carotene-containing vegetables (carotenoderma), acne, hyperpigmentation, seborrheic dermatitis, mottling or bluish or reddish discoloration of the skin, especially over the wrists, digits, and ankles (acrocyanosis), seborrheic dermatitis, petechiae, generalizing itching, and slow wound healing, among others.

The most characteristic cutaneous sign of vomiting is callused knuckles, or Russell's sign. Symptoms of laxative or diuretic abuse include adverse reactions to drugs. Symptoms arising from psychiatric morbidity include the consequences of self-induced trauma.

The role of the dermatologist is to make an early diagnosis of the hidden signs of these disorders in patients, who often try to minimize their disorder, and also to avoid overtreating conditions that are overemphasized by patients who have a distorted sense of their skin's condition.

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and glucose in response to the test meal were delayed among AN patients; however, response patterns at the third measurement were similar to those of controls. Pancreatic polypeptide (PP) levels were increased in patients with AN compared with the controls, regardless of weight status. The delay in insulin release and elevated PP levels did not correct with short-term feeding, and may have contributed to a high relapse rate in the AN patients, according to the authors. The study was presented last fall at the Eating Disorders Research Society Meeting in Toronto.

# Night Eating After Gastric Bypass

Roux-en-Y gastric bypass surgery (RYGBS) reduces the size of the stomach for morbidly obese persons who have been unable to lose weight by other means. Although binge eating often disappears after this procedure, probably due to a smaller stomach capacity, night eating often persists.

Dr. Marci E. Gluck and colleagues at New York Obesity Research Center, New York, NY, St. Luke's/Roosevelt Hospital, Glen Cove Hospital and North Shore Long Island Jewish Health System asked 24 morbidly obese patients to complete the Night Eating Diagnostic Questionnaire based on the work of Dr. Albert Stunkard (*Int J Obes Relat Metab Disord* 1996;20:1) before surgery. Two patients were male, and 22 were female. The test showed that 10 were night eaters, while 14 were not night eaters. The authors also assessed depression, restrained and external eating, self-esteem, ideal body image and discrepancy in body image. The subjects were divided into two groups, the night eaters and non-night eaters (controls).

Then, prior to a fixed meal, stress and hunger were rated and cortisol levels were measured. Before surgery, there were no significant differences between the two groups in body mass index (BMI; kg/m<sup>2</sup>), cortisol levels, stress ratings, or results on psychological tests. Hunger ratings were lower in the night eaters group than in those who were not night eaters.

## What follow-up tests showed

Eleven of the subjects (4 night eaters and 7 non night eaters) returned for their 5-month follow-up, and the presurgical tests were repeated. The percentage of weight loss did not differ between the two groups, based on night-eating status at baseline, and there were no differences between the groups in changes in depression or restrained eating. However, those who were classified as night eaters at baseline had a significant increase in cortisol levels. The control group had a significant decrease in hunger ratings, a significant increase in ideal body shape

ratings, and trends toward a greater decrease in external eating, body image discrepancy, and low self-esteem than did the night eaters.

The authors concluded that despite having the same weight loss as those who were not night eaters, the night eaters had increased cortisol levels and less improvement in psychopathology after RYGBS. They reported the results of their study at the Eating Disorders Research Society meeting in Toronto last fall.

## Body Image, Eating Attitudes, and Psychological Traits in Male Adolescents

Males and females with anorexia nervosa (AN) seem very similar in terms of clinical characteristics, and psychiatric and psychosocial comorbidity. However, a team of Spanish researchers recently reported a finding that was unique to male teens with AN: the patients had a different perception of their body image than did male teens from the general population.

Araceli Gila, PhD, and colleagues at the University of Barcelona, Spain, recently studied body image in 30 male anorexics, 11 to 18 years of age, who were compared with 421 males of the same general age range from the general population (*J Adoles Health* 2005;36:221). The researchers were particularly interested in body image and its relationships with psychological and behavioral traits. They attempted to analyze the perception of different parts of the body among both groups of boys and its relationship with abnormal eating attitudes and other psychological traits related to AN.

## Two testing methods were used

The researchers used the Subjective Body Dimensions Apparatus (SBDA) and the Eating Attitudes Test (EAT-26) to compare perceptions of body image in the two groups. The SBDA is a test that measures the subject's estimation of individual body sites. In its final stage it provides a simultaneous representation of several body sites and thus provides a

global silhouette of the patient. The Eating Disorders Inventory (EDI) was also administered to 19 AN patients and 200 boys from the comparison group.

## Both groups overestimated their body size

Only the Body Dissatisfaction scale on the EDI was statistically significantly different between the two groups. In anorexic patients, the correlation between BMI and EAT scores was particularly high and negative.

Both groups of boys overestimated their body dimensions. Male adolescents from the general population overestimated all parts of their bodies, especially the thorax, waist, and hips. The anorexic patients overestimated their bodies to a greater degree than the control subjects, and emphasized their shoulders, hips, and thighs. The global percentage of overestimating in boys (14.8%) was not greatly different from that found in girls from the general population (11.5%).

The fact that male adolescents overestimated some body areas more than others may indicate that they are concerned with specific areas of their body. The boys with AN also overestimated all parts of their body but their overestimations were only significantly greater than the comparison group in the shoulders, hips, and thighs, which indicated that anorexic boys are particularly concerned with these areas.

## An aspect that may help in treatment

Overestimation of certain parts of the body does not constitute a global idea of an individual's body image, according to the authors. If this can be studied separately, it is an aspect that can be addressed in treatment and may therefore help in the specific cognitive therapy of the patient. In the AN group, the lower the BMI, the greater the body overestimation at all sites. This finding demonstrated that overestimation in males with AN may be pathological, just as in their female counterparts. In addition, among the males with AN, abnormal eating attitudes and drive for thinness correlated significantly with overestimation of different parts of the body, just as in studies of female AN patients.

## QUESTIONS & ANSWERS

### Body Fat Pattern After Weight Gain in Anorexia Nervosa

**Q** I've read that the body's fat pattern changes after weight gain in patients with anorexia nervosa, and that some of these patients tend to accumulate body fat during weight recovery. This topic has arisen during my work several times recently. In my research, I have never been able to find the answer to the question as to whether or not the weight distribution normalizes over time. Do you know whether or not this accumulation of fat is only temporary? Does it normalize over long-term weight maintenance? (*J.S., Nashville, TN*)

**A** Excellent question. Although there's no definitive research at this point, my own experience, and that of a number of other clinicians who've observed these phenomena, including some who participated in a recent study (*Am J Clin Nutr* 2005; 81:1286), is that the fat does redistribute to a more usual, less centripetal, pattern after a period of months. Some of my own patients believe that their return to healthy exercise (not compulsive over-exercise) may have helped in this process. My unsystematic observations are that after several years women who have recovered from anorexia nervosa have pretty much the same fat distribu-

tion pattern as others—and fat patterns similar to those they had prior to getting sick initially.

—J.Y.

### Family-Based Treatment for AN: Higher Dropout Rate Among Hispanic Patients

A few case studies and controlled trials have shown the effectiveness of family-based treatment (FBT) for anorexia nervosa (AN). Researchers at the University of Chicago recently assessed the effectiveness of FBT among 12 Hispanic teens and 12 Caucasian teens with AN. As reported at the 2005 International Eating Disorders meeting in Montreal, both groups regained weight equally well with treatment despite demographic differences such as parent education and marital status. However, more Hispanic teens dropped out of treatment prematurely than did Caucasian teens (25% vs. 8.3%, respectively).

The two groups were matched based on age, body mass index, and duration of illness. The major differences between the two groups were level of parent education and marital status. All Caucasian patients had at least one parent who attended college, compared to only 25% of the Hispanic patients. The Caucasian teens also had more intact families than the Hispanic teens (92% vs. 67%, respectively).

The greater attrition among the

Hispanic teens calls for further study of the potential impact of ethnicity, parent education, marital status and family structure on treatment outcome, according to the authors.

#### Nibbles by Hunter



## IN THE NEXT ISSUE

### Rethinking the Definition of Anorexia Nervosa

By Arnold Andersen, MD

The current DSM definition of anorexia nervosa is badly in need of updating. A thoughtful and helpful essay.

## PLUS

- **Resting Tachycardia: a Helpful Warning Sign in Anorexia Nervosa**
- **Identifying Subtypes of Binge Eating Disorder**
- **A Balancing Act: Dialysis and Weight Restoration in AN**
- **Childhood Abuse and Disordered Eating Among College Men**

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**Continuing Education Quiz for  
Eating Disorders Review**  
January/February 2006 - Volume 17 - No. 1

You are eligible to receive one (1) Continuing Education (CE) credit by completing this quiz based on this issue of Eating Disorders Review (80% correct for a pass). INSTRUCTIONS: Circle the best answer to each of the following questions and return the completed test with a check for \$25 (payable to PER) to PER at PO Box 2196, Keystone Heights, FL 32656.

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Your CE credits will be documented and you will be sent a letter and certificate of completion. CE credits can be used in support of your license renewal, to maintain your managed care board memberships, to obtain discounts on your professional liability insurance policy, and to document your commitment to ongoing professional development. Learning Objectives: 1) Increase your knowledge regarding recent research developments concerning eating disorders, and 2) Enhance your clinical knowledge regarding disordered eating.

- 
1. Orlistat could be the first non-prescription drug approved by the FDA for use as a(n)
    - a. cholesterol medication
    - b. weight-loss medication
    - c. treatment for ADHD
    - d. antidepressant
  
  2. The mechanism of action for Orlistat is
    - a. it reduces intestinal absorption of dietary fat
    - b. it dilates potentially restricted veins and arteries
    - c. it crosses the blood-brain barrier and reduces prefrontal activity association with attention
    - d. it prevents the reuptake of neurotransmitter substances in serotonergic neurons
  
  3. In a recent study of 192 women with diagnosed eating disorders, \_\_\_\_\_ of them were diagnosed with a specific eating disorder had a different eating disorder diagnosis 30 months later.
    - a. one-quarter
    - b. one-third
    - c. two-thirds
    - d. nearly all
  
  4. In a study of the peptide YY (PYY), anorexic patients tended to have significantly \_\_\_\_\_ PYY levels than girls in the control condition.
    - a. higher
    - b. lower
  
  5. True or False: According to a study conducted at Loughborough University, eating restraint in young girls averaging 10 years of age, was linked to longer reaction times in cognitive and generally poorer cognitive performance.
    - a. True
    - b. False
  
  6. According to research by Dr. James Hudson and his colleagues, Binge Eating Disorder (BED) tends to coaggregate most strongly with which of the following
    - a. obesity
    - b. anorexia nervosa
    - c. bulimia nervosa
    - d. bipolar disorder

*(continued on other side)*

7. According to the book, *Weight Bias: Nature, Consequence and Remedies*, weight accounts for about \_\_\_\_\_ percent of the variance in hiring.
- 5%
  - 15%
  - 35%
  - 65%
8. A recent study on spirituality and eating disorders has found that, compared to participants without strong religious beliefs, college-age women with strong religious beliefs tended to cope with their body image distress more through \_\_\_\_\_ and less through \_\_\_\_\_.
- prayer; distraction
  - consultation with clergy; exercise
  - eating; drinking alcohol
  - drinking alcohol; exercise
9. Dermatologic signs of eating disorders may include
- hyperpigmentation
  - hair loss
  - yellowness of the skin
  - all of the above
10. Among patients with gastric bypass surgery, binge eating often \_\_\_\_\_, and night eating often \_\_\_\_\_.
- disappears; persists
  - persists; disappears
  - disappears; disappears, too
  - none of the above

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Evaluation: Overall, this issue of *Eating Disorders Review*: (circle appropriate response)

Provided informative updates	5	4	3	2	1	Was not informative
Expanded my knowledge	5	4	3	2	1	Did not expand my knowledge
Provided useful resources	5	4	3	2	1	Did not provide useful resources
Was appropriate for my training level	5	4	3	2	1	Was not appropriate