EATING DISORDERS REVIEW®

Current Clinical Information for the Professional Treating Eating Disorders

Published by Gürze Books, specializing in eating disorders publications and education since 1980.

ISSN 1048-6984 JULY/AUGUST 2004 • VOL. 15 / NO. 4

UPDATE

Night Eating Syndrome and Circadian Rhythm

People with the night eating syndrome (NES) have morning anorexia, evening hyperphagia, and insomnia followed by eating. A trio of researchers at the University of Pennsylvania recently reported at the 2004 International Conference on Eating Disorders that altered circadian rhythm may play a role in NES. In their study there was no difference between the total energy intake among 46 overweight and obese persons with NES and 43 matched non-overweight control subjects. However, but the pattern of energy intake differed greatly between the two groups. Those with NES had more nocturnal awakenings than did controls, and they awoke from sleep earlier during the night than did control subjects. Food intake after the evening meal was more than three times higher in NES subjects than in controls. According to the authors, the shift in energy intake of the night eaters suggests a phase delay in energy consumption in relation to sleep-wake times. According to John P. O'Reardon, MD and colleagues, this suggests that NES may involve a dissociation of the circadian control of eating in relation to sleep. In another study, Dr. L. Q. Qin and colleagues observed altered endocrine patterns among medical students who lived either a diurnal life or a nocturnal one. The researchers reported that the nocturnal lifestyle led to impairment of the normal insulin response to glucose (*Life Sci* 2003;73:2467).

ALSO IN THIS ISSUE

2004 International Conference on Eating Disorders

Panel Examines Risk for Eating Disorders Throughout the Life Cycle

During a plenary session at the 2004 International Conference on Eating Disorders, in Orlando, four eating disorders experts explored risk factors for development of eating disorders throughout the lifespan.

Dr. Leann Birch, Distinguished Professor at The Pennsylvania State University, University Park, PA, described individual and familial risk factors identified in an ongoing longitudinal study. The study has followed 197 two-parent families and their 5-year-old daughters; the girls are now 13 and will be followed until they are 15 years old.

The family environment is particularly important for kids, Dr. Birch said, noting that parents often determine control of the eating environment by controlling portion sizes and second helpings. After this, media exposure may lead children to seek out certain foods. Parents' attempts to restrict certain foods usually backfire.

"Restricting access to snack foods high in fat and sugar leads to enhanced preferences for those foods, increased attention to those foods and, when the foods are present, increased intake of those foods," said Dr. Birch. Negative self-evaluation about eating those restricted foods has been reported among preschoolers as young as 3 to 5 years of age.

Feeding practices also play a role in the development of unhealthy eating habits—for example, a child's weight might be interpreted by parents in ways that influence their regular feeding practices, particularly restricting foods, and this could have an impact on a child's eating pattern. The parents' own eating patterns and weight play a role both in terms of the environment they are providing for kids and in terms of the genetics they bring to the situation, she added. According to Dr. Birch, development of dieting, overeating, and girls' self-evaluations are influenced by early weight status because, at least in middle-class America, weight tends to trigger certain kinds of parenting behavior, particularly restricted feeding practices.

Eating in the Absence of Hunger

Dr. Birch told the audience that one behvavioral measure of disordered eating among young girls is eating in the absence of hunger. This is really a response to the presence of palatable food, she said; in addition, it captures some characteristics of binge eating. Some kids consume relatively large amounts of food in a short period, and during debriefing sessions they report feeling that their eating is somewhat out of control, similar to binge eating. This is promoted by restrictions imposed by others, not self-imposed restriction.

Girls who are overweight and have mothers who use a lot of restriction show the greatest increases in eating in the absence of hunger, said Dr. Birch. She added that even at age 5, overweight status increases the risk for maladaptive eating attitudes, including eating in the absence of hunger, which the researchers view as a possible precursor of binge eating.

Maternal Weight

Among normal-weight mothers, maternal restriction is not related to daugh-

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EATING DISORDERS REVIEW®

Eating Disorders Review® (ISSN 1048-6984) is published bimonthly by Gürze Books, PO Box 2238, Carlsbad CA 92018. 760/434-7533, fax 760/434-5476, e-mail gurze@aol.com. Prior indexes and more information at www.gurze.com.

Missing issues will be replaced without charge if the publisher is notified within 60 days of publication. Otherwise, replacement and back issues are available for $10.00 by contacting Gürze Books.

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Low-Carbohydrate Diet vs. Low-Fat Diet: No Differences After 1 Year

Ads touting the benefits of a low-carbohydrate diet are everywhere—on restaurant menus, and in supermarkets, bookstores, and even bakeries. But, does a low-carbohydrate diet really work? A one-year study comparing the outcome of a low-carbohydrate diet and a conventional weight loss diet has enhanced our understanding of the benefits and drawbacks of a low-carbohydrate diet (*Ann Intern Med* 2004; 14:778).

Linda Stern, MD, and colleagues at the Philadelphia Veterans Affairs Medical Center randomized 132 obese adults with a body mass index of 35 kg/m^2 or greater to one of two groups—a low-carbohydrate diet or conventional low-fat diet. In the first group, participants restricted their daily carbohydrate intake to <30 g. The low-fat diet group restricted their caloric intake by 500 kcal/day with fewer than 30% of calories from fat. The researchers then measured changes in weight, lipid levels, glycemic control, and insulin sensitivity.

Results at one year

After one year, the mean weight change for persons on the low-carbohydrate diet was –11.2 lb compared with –6.8 lb for persons on the conventional low-fat diet. In addition, those who were on the low-carbohydrate diet had greater decreases in triglyceride levels and smaller decreases in high-density lipoprotein (HDL) cholesterol levels. Among a subgroup with diabetes (54 subjects), hemoglobin A_{1c} levels were more improved among those on the low-carbohydrate diet. These factorable metabolic responses to the low-carbohydrate diet remained significant after adjustment for weight loss differences.

Caloric intake

Persons in the low-carbohydrate diet group decreased their caloric intake more than did the conventional diet group, although this was not statistically significant. The low-carbohydrate group reduced their carbohydrate intake by 52%, reduced their fiber intake by 42%, increased total fat intake by 31%, increased dietary cholesterol intake by 32%, and reduced sodium intake by 21% compared to baseline levels.

Study participants on the low-carbohydrate diet maintained most of their 6-month weight loss, whereas those on the conventional diet continued to lose weight throughout the year. The difference in weight loss was not significant between the two groups. Those on the low-carbohydrate diet who dropped out lost less weight than those who completed the study. In comparison, weight loss was not significantly different from those on the conventional diet, whether they dropped out or completed the study.

Serum lipid levels

Changes in total and LDL cholesterol were not significantly different between the two groups, but triglyceride levels did decrease more in the low-carbohydrate group than in the conventional diet group. The HDL cholesterol concentration decreased more in the conventional diet group than in the low-carbohydrate group at one year. The difference in mean HDL cholesterol response between diet groups remained significant after adjustments for both baseline variables and weight loss, suggesting that there were direct diet-related effects on HDL cholesterol.

Dr. Stern reported there was no significant difference in overall weight loss between the two groups, and in contrast to findings in an earlier study (*N Engl J Med* 2003;348:2082), persons on the low-carbohydrate diet maintained most of their initial weight loss, whereas those on the conventional diet continued to lose weight. The authors also reported that despite speculation that a low-carbohydrate diet would increase weight loss by promoting the metabolism of adipose tissue, their data seem to show that weight loss differences may be explained by lower caloric intake on a low-carbohydrate diet. If this is true, it may be due to the simplicity of a low-carbohydrate diet or to greater effects on satiety. They point out that those on the low-carbohydrate diet who dropped out of the study were less likely to lose weight, whereas those assigned to the

conventional diet lost a similar amount of weight whether or not they remained in the study.

Adverse reactions

Three participants in the low-carbohydrate group had adverse reactions. One was hospitalized with noncardiac chest pain in the third month of the study. Two others died, including one who died of complications of hyperosmolar coma 5 months into the study. Another person had severe ischemic cardiomyopathy and died suddenly 10 months after enrolling in the study. Laboratory studies 14 days before this person's death showed no electrolyte abnormalities. Among the other participants, changes in serum creatinine concentrations did not differ significantly between the two groups; however, blood urea nitrogen levels increased more in the low-carbohydrate diet group.

The authors noted several important limitations of their study: the overall weight loss was modest and the dropout rate was high. Most of the participants did not meet their dietary targets (i.e., <30 g of carbohydrate in the low-carbohydrate group and reducing 500 kcal per day in the conventional diet).

Though weight loss was similar in the groups, the authors found that the low-carbohydrate diet had a direct and more favorable effect on triglyceride levels, HDL cholesterol level, and glycemic control among the small subgroup of diabetic patients. According to the authors, future studies will be needed to evaluate the long-term effects of a low-carbohydrate diet on the development of diabetes and cardiovascular outcomes.

EDI Subscales Not Sensitive To Cluster B Disorders

The Eating Disorders Inventory (EDI) is one of the most widely used self-rating questionnaires in research and clinical practice. Its 8 subscales assess cognitive-behavioral symptoms commonly found in persons with eating disorders and psychological correlates or personality characteristics present in, but not exclusive to, eating disorders. According to Swiss researchers, the EDI subscales are generally sensitive to Axis I and some Axis II disorders but not to cluster B personality disorders (*Can J Psychiatry* 2004; 49:179). Axis I disorders are clinical disorders, while Axis II disorders include personality disorders and mental retardation, for example. Cluster B disorders are characterized by dramatic, narcissistic and hysterical personality traits.

Gabriella Milos, MD, and a team at the University of Zurich studied 67 persons from the eating disorders inpatient unit of the University Hospital, Zurich, 66 psychiatric outpatients, and 31 persons with eating disorders from self-help groups over a 2-year period. As expected, participants with bulimia nervosa had higher scores on the EDI-B subscales than did other persons with anorexia nervosa and eating disorders not otherwise specified. Differences between these diagnostic subgroups in the other EDI subscales were not detectable.

The comorbidity on Axis I and Axis II was high. The most common Axis I disorders were affective, anxiety, and substance-related disorders. For Axis II, the most common were personality disorders of cluster C. Just as has been shown in other research on eating disorders, the authors report that their results show that comorbidity on both Axis I and II was predominantly characterized by anxiety and depression.

When the authors examined personality disorder clusters, similar patterns emerged for cluster A, cluster C, and depressive-negativistic personality disorders. An unexpected finding was the difference in EDI profiles between participants with and without cluster B personality disorders. Only subscale B was associated with the presence of cluster B disorders. According to the authors, overlaps between bulimia nervosa symptoms and symptoms of cluster B personality disorders, including borderline personality disorders, have been pointed out. None of the psychological EDI subscales was sensitive to this cluster.

The authors note that clinicians and researchers using the EDI need to be aware that it is not sensitive for all forms of comorbidity among disorders patients. In addition, those with cluster B disorders may give biased responses on the EDI and other self-report measures.

Target Weight Discrepancy: A Simple Prognostic Tool

In both bulimia nervosa and anorexia nervosa, patients express a morbid fear of fatness. Janelle W. Coughlin, PhD, and researchers at Johns Hopkins University, Baltimore, have found that the difference between the patient's desired target weight (using a patient's response to the question, "How much would you like to weigh?") and target weight based on age, sex, and height may provide a simple and useful tool to gauge prognosis.

The researchers hypothesized that patients with greater discrepancies in target weight would have longer stays in inpatient and partial hospital services and would have greater psychopathology. As reported at the AED meeting in Orlando in May, they calculated target weight discrepancies (TWDs) among 194 patients admitted to the Johns Hopkins Eating Disorder service who had Structured Clinical Interview for DSM-IV (SCID)-diagnosed eating disorders and who were participating in an outcomes study. Comparisons were made between 63 patients with bulimia nervosa and 131 with anorexia nervosa (AN).

Discrepancies higher among AN patients

AN patients had significantly higher TWDs than did BN patients (13.5 vs. 6.6 lb). Patients who had previous admissions had higher TWDs than did those admitted for the first time (13.7 vs. 9.4 lb). The group with high TWDs scored higher on neuroticism and lower on conscientiousness, had more depressive symptoms, were less ready to change, and were more likely to engage in restricting and purging eating behaviors in the month before they were admitted for treatment. There were no differences between the groups on the Eating Disorders Inventory-2 (EDI-2), Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ), or perceived coercion regarding treatment.

Calculating TWD might be a simple and effective prognostic tool. Patients with high TWD exhibit more psychopathology and problem behaviors, and are more likely to have chronic disease.

Scene From a Mall: A Study of Teens and Fast Food

An experiment conducted in a mall food court provided information about fast food intake among overweight and lean adolescents (*JAMA* 2004; 291:2828). Two findings were that teens overconsumed fast food regardless of their body weight, and overweight teens underreported the amount they ate.

At least three-fourths of teens eat fast food one or more times a week.

Fast food has become a staple of the teenage diet, among all socioeconomic and racial/ethnic groups in the U.S. Thus, it's no surprise that fast food is heavily marketed to this age group. Now it is estimated that at least three-fourths of teens eat fast food one or more times a week. This increase parallels the escalating rate of obesity in the U.S.

In what is believed to be the first study of the effects of fast food upon overweight and lean teens, researchers at the University of Boston and the University of Minnesota conducted a two-part investigation. First, they fed "an extra large" fast food meal in a naturalistic setting (the food court) to overweight (26) and lean (28) adolescents 13 to 17 years of age. "Overweight" was defined as a body mass index exceeding gender and age-specific 85th percentile levels, based on the 2000 Centers for Disease Control and Prevention growth charts.

The teens were instructed to eat as much or as little as they liked during the 1-hour meal. Participants were grouped by gender and weight to avoid any self-consciousness about eating (for example, girls eating less in the presence of boys and overweight teens eating less in the presence of their lean peers).

In the second part of the study, the researchers assessed the teens' energy intake under free-living conditions for 2 days when fast food was consumed and 2 days when it was not. Teens were instructed to eat at one of the 5 leading fast food restaurants (McDonald's, Wendy's, KFC, Burger King, or Taco Bell). They were instructed to eat at least one menu item containing meat (beef, pork), chicken fish, beans or egg, plus one additional item, such as french fries, a beverage, or dessert. They also had 4 dietary and physical activity recall telephone interviews, and the researchers used a 24-hr dietary recall method, asking the participants to list in sequence the foods and beverages they consumed during the preceding day, with details about each reported item. Physical activity was quantified using a 24-hr recall in which the participants were asked to record the activity performed most during respective 15-minute time blocks throughout the day and then to rate the relative intensity for each activity.

High caloric intake, underreporting of amounts

In the first part of the study, the mean energy intake from the fast food meal was extremely high (1652 kcal), accounting for 61.6% of estimated daily energy requirements. The researchers also found that overweight teens ate more than lean teens (1860 kcal and 1458 kcal, respectively), whether energy was expressed in absolute terms or relative to estimated daily energy requirements.

In the second part of the study, overweight participants consumed significantly more total energy on fast food days than non-fast-food days (2703 vs. 2295 kcal/day). This pattern was not seen among the lean adolescents, who consumed 2575 kcal/day on fast-food days and 2622 kcal/day on non-fast-food days. Overweight participants tended to underreport total energy intake when compared with their lean participants.

According to the authors, if one assumes a dietary pattern of 3 meals and 1 or 2 snacks per day, the average meal size to maintain energy balance should not exceed 30% of daily energy requirements, or approximately 790 kcal. In the first part of the study, the participants massively over-ate, consuming an average of 1652 kcal (61.6%) of estimated total energy expenditure while in the food court setting. The lean teens consumed virtually the same amount of calories on both days. This suggested that overweight individuals do not compensate completely for the massive fast food portion sizes served today.

Testing a Spanish Version of the ANSOCQ

Anorexia nervosa patients often have an ambivalent attitude toward recovery, which may pose challenges for healthcare professionals who are trying to establish a good therapeutic alliance with these patients. Prochaska and DiClemente (*Psychotherapy: Theory, Research, and Practice* 1982; 19:276) developed a stages-of-change model to help explain the process toward a real willingness on the part of the patient to change. In its most recent version, six stages are identified: precontemplation, contemplation, preparation, action, maintenance, and termination.

Physicians in Barcelona, Spain, have tested and validated a Spanish version of the Anorexia Stages of Change Questionnaire (ANSOCQ), developed by Reiger et al. in 2001 (*Psychology and Psychotherapy Theory, Research and Practice* 2004;77:91). Dr. E. Serrano and colleagues at the University of Barcelona administered the ANSCOQ, the Eating Disorders Inventory (EDI-2), the Beck Depression Inventory (BDI) to 70 anorexia nervosa patients with a mean age of 15.6 years who were being treated at a specialized eating disorder clinic and who had reached different stages of treatment.

The authors reported that their results support the psychometric properties of the Spanish version of the ANSCOQ. Significant negative correlations were obtained between the ANSCOQ and both the BDI and EDI-2 subscales (especially the drive for thinness, body dissatisfaction, ineffectiveness, interoceptive awareness, asceticism and social insecurity subscales). Their work also adds to previous research because their study population was younger than previous groups and included patients attending a day program and outpatient programs rather than inpatient. The percentage of patients in each stage of change lent further support to the validity of the ANSCOQ. In comparison to the study of Reiger et al (*Int J Eat Disord* 2002;32:24), in Australia, patients in the current study were more often in the preparation and action stages. The authors explain that

the patients in the Australian study were all evaluated during admission to an inpatient unit, whereas the participants were patients undergoing inpatient, day program, or outpatient treatment. The Spanish version of the ANSCOQ was found to be reliable and consistent. According to the authors, it is likely to be a useful instrument for clinical and research work on anorexia nervosa in Spanish-speaking populations.

Changing Inpatient Treatment Time—Does It Improve Outcome?

Factors other than the rate of weight gain during hospitalization may influence treatment outcome for patients with anorexia nervosa (AN), according to Scott J. Crow, MD, and Molly C. Gill, from the University of Minnesota, Minneapolis. They reported their study at the Academy for Eating Disorders meeting in Orlando.

According to the authors, over the last 20 years the length of inpatient hospitalization for eating disorders has decreased, as has the average weight at discharge. At the same time, the number of hospital re-admissions has increased. It has also been shown that when patients are discharged while still underweight, they may have a less favorable outcome.

Dr. Crow and colleagues attempted to replicate these findings and to examine characteristics of weight restoration that might affect treatment outcome during two separate periods. The subjects included all University of Minnesota Hospital first admissions for treatment of eating disorders during 1975 to 1980 and 1990 to 1995. The number of patients meeting DSM-IV criteria for AN admitted to the hospital during these two treatment periods was 23 and 97, respectively.

The researchers found that length of inpatient stay deceased significantly from the first time period to the second: from 70 days to 37 days. During the same time, the likelihood of rehospitalization for treatment of an eating disorder increased significantly: from a 4% chance of readmission during the first time period to a 40% chance of readmission in the second time period.

Outcome is linked to rate of weight gain

Unlike previous studies, average admission weight increased significantly, from 77 lb to 88 lb, while the average discharge weight did not change significantly. During both study periods subjects were discharged while they were still underweight (average body mass indexes of 16.57 and 16.72 kg/m2, respectively). Thus, lower discharge weight could not account for the increase in hospital readmissions. There was, however, a significant difference in the rate of inpatient weight gain, from an average of 0.27 lb/day in the first group to an average of 0.43 lb/day in the second study group.

According to the authors, their study results suggest that outcome of hospitalization for AN is influenced not only by discharge weight, but by the rate of weight gain while the patient is hospitalized. Therefore, longer inpatient stays for patients with AN may lead to better outcomes and fewer readmissions.

BOOK REVIEW

Overcoming Night Eating Syndrome: A step-by-step guide to breaking the cycle

(Kelly C. Allison, Albert J. Stunkard, with Sara L. Their. New Harbinger Press, Oakland, CA, 2004. 173 pp; $14.95)

In contrast to the plethora of available material on eating disorders, to my knowledge no previous book for lay audiences, or clinicians for that matter, has specifically addressed the night eating syndrome (NES). Recent research suggests that older NES sufferers tend to be obese relative to younger ones, so it seems reasonable to suspect that NES may be one factor contributing to midlife obesity. Since Albert Stunkard first characterized NES at the University of Pennsylvania about 40 years ago, and since Kelly Allison now directs the NES project at Penn, these are the people worth listening to about this increasingly prominent subject.

When I wrote an editorial regarding NES in the *Journal of the American Medical Association* a few years back in response to a research paper that Stunkard's group published in the same issue (*JAMA* 282:657, 1999), I was immediately inundated with e-mails from professionals, NES sufferers, and professionals who were themselves NES sufferers. All were seeking additional information, referrals, and treatment. Sadly, there was little to offer at that time. Although there's still much to be understood about the origins and treatment of NES and its variants, this new book provides a welcome way station along the road.

In plain language and through straightforward checklists, the authors lay out what the syndrome is, what the consequences are, and how individuals can decide whether their difficulties are consistent with NES. Guidelines are provided by which people can keep diaries of food intake, and monitor their sleep patterns and moods. Of great help for sufferers and professionals alike, the chapter addressing "What Night Eating Syndrome Is Not" helps differentiate NES from eating disorders and from other sleep disorders, including nocturnal sleep-related eating disorder (NS-RED). The book succinctly describes what is currently known about genetic-familial transmission and abnormal hormonal secretion patterns in NES. Finally, several chapters on self-help and treatment offer an additional payoff. The authors have identified at least four varieties of NES sufferers that they term the "compelled" evening and nighttime overeater, the "anxious/agitated" eater, the "cravings" overeater and the "all-or-none" belief about sleep night eater. Accordingly, they present several cognitive-self-monitoring practices, and introductions to imagery, relaxation and other behavioral interventions.

The authors address the literature on medication and NES (extremely skimpy) and report on the recent open-label study from Stunkard's group showing that some patients benefit from SSRI treatment. Sufferers are also pointed toward professional help and are provided with a list of currently available sources available on the web and through lay and professional organizations (also extremely skimpy). Until "extremely skimpy" can be deleted from these discussions, this volume will serve as one of the few excellent sources available. I'll certainly be directing many sufferers toward this book.

—J.Y.

continued from page 1

ters' eating in the absence of hunger and is not related to change in body mass index (BMI). Dr. Birch noted that about 65% of the mothers in her study are overweight, and the researchers have seen that maternal restriction in this group is quite strongly related to eating in the absence of hunger over time and to daughters' increases in BMI.

Dr. Birch said that among middle class white girls, early overweight increases risk for at least some sorts of maladaptive eating. In her study, there was greater eating in the absence of hunger, negative self-evaluations of overeating, elevated weight concerns, elevated body dissatisfaction, early dietary restraint, and greater weight gain across middle childhood among those who were overweight at an early age.

One area that needs more study, according to Dr. Birch, is determining which factors are mediating risks conferred by early overweight. Dr. Birch concluded, "Overweight parents create eating and activity environments that are quite different from those of normal-weight parents. If we understood this better we'd have some good ideas about prevention."

Risk Factors for Eating Disorders

Studying risk factors for eating disorders helps clarify diagnoses and classifications, and also helps direct treatment, according to Ruth Striegel-Moore, PhD, Professor and Chair of Psychology at Wesleyan University, Middletown, CT.

She reported initial findings from the National Growth and Health Study, Wave II, sponsored by the National Institute of Mental Health and the National Institute of Diabetes, Digestive and Kidney Diseases. The goal of the 1-year study is to identify eating disorders early by identifying high-risk populations.

One important question was whether ethnicity was a marker for an eating disorder. In the study, white women were significantly more likely than black women to meet diagnostic criteria for an eating disorder. There was also a significant difference in the number of women who met criteria for bulimia nervosa—4 black women and 23 white women. Less marked ethnic differences were reported for binge eating disorder (BED). However, there were twice as many white women as black women who met diagnostic criteria for BED. Vomiting was much more common among white women, and very uncommon among black women, but no difference was seen in laxative abuse between white and black women. Dr. Striegel-Moore also reported that white women have an earlier onset compared to black women.

Three High-Risk Groups Identified

The researchers identified three high-risk groups: (1) those who had high weight concerns before age 14; (2) those who were less concerned about weight than the first group but who reported high perceived stress; and (3) a subgroup whose weight concerns and perceived stress were lower than those among group 1 or 2, but who reported behavior conduct problems before age 14.

Research on risk factors so far has focused primarily on the question of whether a given variable is a risk factor for an eating disorder. Dr. Striegel-Moore emphasized that her group has attempted to show that for different subgroups different variables or different combinations of variables may increase risk. She also added a word of caution about matching treatment based on a risk profile, pointing out that treatment matching, particularly in substance abuse and alcoholism, has been spectacularly unsuccessful.

Finally, she said, "Our results underscore that we need to be very careful regarding our messages on what factors contribute to risk. When we design prevention programs or public education campaigns, simple messages may make for compelling sound bytes but they don't necessarily make for compelling truths. Our ultimate goal is to reduce suffering due to an eating disorder. We will succeed if we resist the urge to provide single-factor answers and pursue treatment interventions that keep in mind the complexity of the etiology of eating disorders."

Psychosocial and Genetic Risk Factors

Andreas Karwautz, MD, Professor at the University Clinic of Neuropsychiatry, Vienna, Austria, described the value of the concept of non-shared environment for development of anorexia nervosa (AN) and the opportunities to use a discordant sister-pair design for clarifying risk for developing anorexia nervosa.

Discordant sister-pairs have several advantages for study over nonrelated case-control studies. These include similar socioeconomic status, living region, family structure, parental socio-academic status, and religious orientation of parents, for example. He added that this structure allows researchers to replicate and investigate found associations in between family studies using a within-family design. Genetic markers can also be included in the same samples and then researchers can focus at the end on gene environment interaction to help clarify the etiology and pathogenesis of these disorders.

Dr. Karwautz shared recent unpublished data on 120 sister-pairs discordant for anorexia nervosa studied in Vienna, London, and Barcelona. Fifty-five of the pairs had restricting type AN and 70 had binge-purge type AN. The two groups were similar in age and the age of onset of AN was around 16 years of age.

Some Suggestions for Parents

If restricting food in childhood can lead to maladaptive eating, what can parents do in the face of supersized, oversized portions? According to Dr. Birch, the key is to start early to help kids to learn to like healthy foods. She noted that this involves a lot of work, including presenting kids with fruits and vegetables at an early age and getting them to accept these foods. She and her colleagues see a lot of children who don't know what broccoli is—and they won't eat an unfamiliar food.

The other approach is not to bring unhealthy snack foods into the home because as the researchers reported, restricting food seems to be important in cases where the child knows the food is around but they don't have control over access. The answer is for parents to not bring those foods, or only small amounts of the foods, into the home. The problem won't be solved by individuals, but involvement of the food industry could help develop solutions.

Among the 58 sister-pairs with restricting AN, researchers found that personal environment was significant and enhances the risk of developing AN. Some common features in this group included negative self-evaluation, perfectionism, no male friends, parental control, rivalry with the unaffected sister, and a need to compete with the sister's appearance and shape. Minor but still significant factors included shyness and premorbid anxiety disorders.

Among the 62 sister-pairs with binge-purge type AN, personal environment and dieting contributed to the development of their disorder. Girls with this subtype of AN had a number of the same characteristics as those with the restricting type of AN, but were also distressed by parental arguments, and life events the year before their illness developed. Two main items emerged in the dieting domain: repeated critical comments by family members about weight, shape, and eating, and teasing about shape and weight and appearance,

Vulnerability factors have a significant influence on the development of AN of both subtypes, while dieting vulnerability factors contributed to the development of binge-purge type AN. Data from the multicenter study adds new information about personal vulnerability in the two AN subtypes. Dr. Karwautz reported that personal vulnerability (for example, negative self-evaluation and perfectionism) is highly relevant to restricting AN. Internalizing behavior problems in childhood influence the development of restricting AN, and internalizing and externalizing problems contribute to the development of binge-purge AN.

The next step, said Dr. Karwautz, will be handling candidate gene data together with psychological and psychosocial risk factors in order to develop a gene environment interaction model of development of AN.

Older Adults with Eating Disorders

"We don't think much about eating disorders in older women, as illustrated by the fact that prevalence rates are often calculated and presented only for young women," Marika Tiggemann, PHD, Professor of Psychology at Flinders University, Adelaide, Australia, told the plenary session audience. Eating disorders can be a chronic condition throughout life, she said.

Dr. Tiggemann added that body dissatisfaction is one of the few robust and consistent risk factors that have been identified among adult women with eating disorders. She noted that it is reasonable to expect that body image would become more negative as women age—every year moves women further from the thin and youthful ideal

Lifelong Dissatisfaction

Women seem to be more dissatisfied or negative about their bodies at all ages, she said. In fact, she said, body dissatisfaction seems to be remarkably stable across the entire female lifespan. Women aged 30 to 75 years show substantial levels of body dissatisfaction, just like younger women. Between 55% and 95% of women express dissatisfaction with their bodies, and chronic dieting may pose a particular health risk for women as they age.

Risk factors may have differing degrees of influence across the life span. An area that receives too little attention, according to Dr. Tiggemann, includes the biological developmental milestones in a woman's life. All women have the potential to increase fat deposition through the operation of sex hormones, and this physiological factor moves a women further from the thin and youthful ideal. The effects of menopause on body image haven't been studied very much, she said. At menopause, weight typically becomes redistributed and women's shapes change, so they have larger waists, becoming rounder in shape. Pregnancy also brings body dissatisfaction during the postpartum period.

Need for a Better Definition of Body Image

Dr. Tiggemann told the audience that there is a need for a broader definition of body image. When talking about younger women and the predictors of disordered eating, it makes sense to focus on body size and weight; but for older women other aspects might come into play. She mentioned a study in 1996 when older women were asked to select the most attractive physical feature of an older person. Their answer was, "posture." This demonstrates that there may be many other aspects of body image among older women that are missed because of concentrating on young women and generalizing from what we know about younger women, she added.

Muscle Dissatisfaction in Young Men

According to the results of a recent study in Finland, which was reported at the recent 2004 International Conference on Eating Disorders in Orlando, FL, muscle dissatisfaction among men is associated with psychopathology similar to that seen for disordered eating among women. Anu Raevuori and a team at Helsinki University Central Hospital assessed 1245 men aged 22-27, as part of the Finnish Twin Cohort Study.

Men who always or usually wanted to be more muscular (16% and 13.9%, respectively, who responded to a questionnaire) made up the muscle dissatisfaction group. They were compared to men who often wished to be more muscular (14.3%), sometimes wished to be more muscular (31.7%), rarely wished to be more muscular (15.7%), or never wished to be more muscular (8.4%).

Men who had used dietary supplements or anabolic steroids continuously during the last 3 months (6.2%) were coded as "SU" men. Those who had tried supplements or steroids occasionally (13.2%) or never (74.8%) were coded "non-SU" men.

Frequent steroid use

More than half of the men with muscle dissatisfaction (53.3%) had used steroids or dietary supplements. Men who were dissatisfied with their musculature had significantly higher scores on the Eating Disorders Inventory than other men, even when this was adjusted for waist circumference. Mean body mass index scores did not differ between the two groups.

Those who were dissatisfied with their muscle mass also had more psychosomatic symptoms and lower levels of life satisfaction, denoting significantly poorer self-assessed mental health. This was true even when adjusting for place of residence and educational level.

QUESTIONS & ANSWERS

Pelvic Floor Problems

Q A middle-aged woman with anorexia nervosa whom I'm treating was recently diagnosed with "pelvic floor dysfunction." She's developed anal incontinence and has had vaginal prolapse. She exercises a great deal, but has not been a laxative abuser. She's never had children and has never had any gynecological surgery. Could this condition be a result of her anorexia nervosa? (*P.G., Miami*)

A Cases similar to the one you've described have been reported in connection with anorexia nervosa, even in the absence of laxative abuse. Pelvic floor problems are not uncommon in middle age, and may be particularly related to chronic constipation, a frequent symptom in anorexia nervosa. In one series, 5 of 12 women with anorexia nervosa who complained of chronic constipation were found to have some degree of pelvic floor dysfunction (Cortes E et al, *Int Urogynecol J*, 14: 254, 2003). Presumably, anal incontinence, one possible manifestation of pelvic floor dysfunction, might result from a combination of metabolic and physical damage to pelvic floor muscles, even in the absence of prior obstetrical or gynecological injury. Conceivably, the combination of hypoestrogenism, low-protein diet, and excessive exercise may result in structural damage and atrophy of the puborectalis muscle. Surgery may be necessary to repair the damage.

—J.Y.

Nibbles by Hunter

"How do I delete weight?"

Infertility and Menstrual Problems: Suspect Disordered Eating

Infertility and menstrual problems can serve as sensitive indicators of bulimia in normal-weight or slightly obese patients who are hiding pathological eating habits, according to Maria Resch, MD, and a team of Hungarian researchers (*Fertil Steril* 2004;81:1151).

Dr. Resch reported that subclinical eating disorders occur frequently in women who come to gynecologic outpatient departments for treatment for gynecologic disorders. The Bulimia Investigation Test (BITE) was given to 72 Hungarian women aged 19 to 38 years of age who had sought treatment for problems of infertility and to assess eating disorders symptoms. None was taking oral contraceptives. Fifty-eight of the 72 women completed the questionnaire

Subclinical eating disorders uncovered

Overall, 28 of the 58 women (48%) reported significant eating problems. Secondary amenorrhea was identified in 11 women, oligomenorrhea in 27 women, and anovulation in 20 others.

Seven women (11.8%) had already been hospitalized for pathological eating behaviors and disorders. Of the 58 infertile women, 6 met criteria for clinical bulimia nervosa, 8 met the definition of subclinical bulimia (mean BMI: 26 kg/m2), and 30 showed no eating disorders. Five very slim patients (BMI<17.5 kg/m^2) matched clinical anorexia nervosa.

Endocrine disorders

The women in the study had pathologically low luteinizing hormone and follicle-stimulating hormone (two hormones critical to reproductive health) values. The levels were in proportion to the severity of the symptoms of their eating disorders. The authors note that the results of this study can be better understood by considering that the severity factors on the BITE test include not only binge eating but weight-reducing activity, for example, through excessive physical exercise. Dramatic changes in eating, such as crash dieting—rather than malnutrition and low weight—could also be responsible for the low hormone levels.

IN THE NEXT ISSUE

The Death of Nasogastric Tube Feeding

By Pierre Leichner, MD, FRCP

At BC Children's Hospital, Vancouver, British Columbia, the Eating Disorders Program has made numerous changes in their approach to patients with severe eating disorders, including the use of nasogastric tube feeding. Dr. Leichner challenges several other areas, including the validity of the DSM system. An editorial accompanies the article.

PLUS

- **Mirror Exposure for Body Image**
- **Sexual Function and Attitudes Among Women with Eating Disorders**
- **Dissociation and Binge Eating in a Nonclinical Group of Women**

and much more...