Dieting, body weight, body image and self-esteem in young women: doctors' dilemmas

Suzanne F Abraham

ABSTRACT

- Many young women feel that body image and exercise are important for their self-esteem, want to lose weight, are afraid they might gain weight, and feel fat.
- Interventions that improve self-esteem, encourage communication and help adolescents to be supportive of each other may prevent some of these women from developing eating disorders.
- If an eating disorder is suspected, it may be useful for physicians to ask about fear of loss of control over the body, eating, weight and shape; and preoccupation with food, eating, nutrition, body weight and shape, as these issues may differentiate those at greater risk.

MJA 2003; 178: 607–611

WHAT IS NORMAL EATING and exercise behaviour in young adolescents and what are normal adolescent thoughts about eating and body shape and weight? Questions like this were raised in the Journal 20 years ago,[1] and some remain unanswered. In this article, I examine our current knowledge and discuss some of these unanswered questions.

Adolescent girls often comment that they are "dieting" but what they mean by this differs for premenarchial and postmenarchial girls.[2] Before menarche, "dieting" is described by the girls as "normal healthy eating"; only after menarche does "dieting" include the concept of weight loss. Menarche is followed by an increase in body weight and body mass index (BMI). Many young women try to lose weight by restricting their food intake, and exercising. A few experience binge eating — episodes they feel are outside their control and during which they eat large amounts of food — and a few resort to potentially dangerous methods of weight control, such as smoking cigarettes, purging and using social drugs.

Some young Australian women also express beliefs and feelings that are thought to be indicative of the presence of an eating disorder. Standardised measures of eating and exercise behaviour can be provided in both clinical and community settings by the use of a tool known as the Eating and Exercise Examination by Computer (EEE-C)[3,4] — a computerised questionnaire which gathers data on thoughts, feelings and behaviour related to eating and exercise. A recent unpublished survey of students from two secondary schools (one working and middle class inner city school and one suburban private girls' school), as well as tertiary students and patients with eating disorders, showed that many young women, both with and without diagnosed eating disorders, feel that body image (weight and shape) and exercise are important for their self-esteem, want to lose weight, are afraid they might gain weight and become fatter, and feel fat (Box 1).

What causes eating disorders?

Risk factors

Although the research is still in its infancy, it shows that there is a considerable genetic propensity for developing an eating disorder (> 50% of variance for anorexia nervosa and bulimia nervosa).[5-7] Kendler proposed that eating disorders have a genetic component that requires an environmental factor for gene expression.[7,8] He suggested that the stimulus for genetically "at-risk" women could be the emphasis society places on a lean body image. Puberty (menarche) may also be a risk factor for the onset of disordered eating because of the associated increase in body weight, and also because there may be a genetic female "risk" for developing an eating disorder.[9] Childhood experiences, such as living in refugee camps, alcoholism in a family member, absent or ill parents, having carers with eating disorders, or experiencing physical or sexual abuse, frequently coupled with not having the opportunity to learn "normal" eating behaviour from strong role models, are also likely risk factors.[5,8]

We do not know what the genetic characteristics are that make a person likely to develop an eating disorder. Possible candidates are ease of weight loss, impulse control around food, ease of vomiting, failure of compensatory responses to starvation, and failure of compensatory responses to overeating, such as feeling full. We do know that being female and being adolescent are biologically relevant.

There are many factors that appear to cause eating disorders. The only common element is actual or attempted weight loss. However, as most young women attempt dieting and lose weight at some time (Box 1), it is not the only factor. The trigger for the initial or attempted weight loss and development of the disorder is not necessarily the factor that maintains the disorder. A person may have risk factors for an eating disorder, but never develop one, while others appear to develop eating disorders in the absence of known risk factors.

Triggers for weight loss

Triggers or reasons for weight loss include viral illness, exercise for better performance, excessive exercising to

Department of Obstetrics and Gynaecology, University of Sydney, Sydney, NSW.
Suzanne F Abraham, MSc, PhD, Associate Professor.
Reprints will not be available from the author. Correspondence: Associate Professor Suzanne F Abraham, Department of Obstetrics and Gynaecology, University of Sydney, Royal North Shore Hospital, St Leonards, NSW 2065. sabraham@med.usyd.edu.au

1: Behaviours, thoughts and feelings in the previous 28 days among 438 secondary and tertiary students and 116 patients with eating disorders

Behaviours in last 28 days	Students (438) (number [%])	Patients with eating disorders (116) (number [%])
Trying to lose weight	288 (66%)	96 (84%)
Restricting food intake	212 (48%)	95 (83%)
Restricting food intake for more than 14 days	127 (29%)	92 (80%)
Exercise for shape/weight	246 (56%)	71 (62%)
Excessive exercise any reason*	66 (15%)	28 (24%)
Excessive exercise* on more than 19 days	30 (7%)	16 (14%)
Binge eating†	68 (16%)	51 (44%)
Binge eating† more than once a week	24 (6%)	28 (24%)
Self-induced vomiting	29 (7%)	42 (37%)
Laxative abuse	8 (2%)	21 (18%)
Purging (vomiting/laxatives) more than once a week	19 (4%)	48 (42%)
Smoking cigarettes for weight control	45 (10%)	23 (20%)
Drinking coffee for weight control	19 (4%)	26 (23%)
Taking slimming tablets	19 (4%)	9 (8%)
Using social drugs for weight control	11 (3%)	8 (7%)
Chewing and spitting out food	6 (1%)	13 (11%)

* > 500 kcal. † Objective binge eating, episodes of eating large amounts of food and feeling out of control.

	Students		Patients with eating disorders	
Thoughts and feelings — in the last 28 days did:	Present	Present more than half the time	Present	Present more than half the time
■ You feel afraid of losing control over your eating?	42%	14%	87%	60%
■ Being preoccupied with thoughts of food/eating affect your concentration on other things?	42%	6%	92%	68%
■ Being preoccupied with thoughts of weight/shape affect your concentration on other things?	39%	6%	89%	56%
■ You feel extremely bad when you ate for weight/shape reasons?	63%	23%	89%	62%
■ You feel weight was important for self-esteem?	85%	34%	95%	66%
■ You feel shape was important for self-esteem?	88%	36%	94%	71%
■ You feel exercise was important for self-esteem?	89%	34%	89%	58%
■ Feel fat?	75%	40%	87%	67%
■ You fear you might gain weight or become fat or fatter?	72%	32%	91%	73%
■ Did you seriously want to lose weight?	69%	34%	85%	61%

For this Box we used a database of EEE-C (Eating and exercise examination by computer)[3,4] results from students of one working and middle class inner city and one suburban private girls' secondary school, tertiary students and patients with eating disorders in 2001/2002. Developed for use in clinical and community settings,[4] the EEE-C provides immediate assessment and a database of eating disorder diagnoses (agreement with "expert" eating disorder psychiatrist for no eating disorder versus eating disorder [$n = 50$], $\kappa = 0.65$, $P < 0.001$; and in a separate study [$n = 88$], for anorexia nervosa, $\kappa = 0.76$, $P < 0.001$, and for bulimia nervosa, $\kappa = 0.81$, $P < 0.001$), standardised measures of eating and exercise behaviour and questions relating to undereating, overeating, exercise, disordered eating, body image (weight and shape), and psychological feelings and behaviour.

please coaches or be part of the "gym scene", depression, family breakdown or conflict, finding weight loss or excessive exercise has an antidepressant effect, grief from loss of a family member or friend, and reaction to adjustment to new situations.

Some young women may take dietary advice too literally. For example, "eat less fat" may not be appropriate for an active, slim teenager who interprets this as "eat no fat". The American Pediatric Association has produced guidelines and recommendations to promote exercise and healthy growth and development of young people.[10]

Perpetuating weight loss

Anecdotal evidence and clinical observation show that, in some people, there appears to be a critical body weight and state of nutrition below which weight loss becomes self-perpetuating. Patients report feeling they cannot help themselves and are unable to change their behaviours and thoughts, and may even accept death as inevitable. Affected women do respond to treatment and are grateful for the intervention.

This apparent self-perpetuating negative energy balance may be associated with a genetic predisposition to develop-

2: How can general practitioners help?

In general

As part of continuing education, learn what are healthy attitudes, practices and beliefs about food, eating, exercise and body weight for young people

- Learn "what is normal eating"
- When talking with adolescents, be aware of possible risk, trigger and perpetuating factors associated with eating and exercise problems

In the community

Help school teachers and counsellors, adolescent workers, sports coaches, dance teachers to:

- Understand the need for healthy attitudes and practices in adolescents
- Know what are responsible, healthy behaviours and beliefs about food, eating and weight for their teenage group
- Support activities and practices that promote the self-esteem and mental health of young people (eg, stopping "bitchiness" and bullying, and promoting community support)

In clinical practice

If you like working with young people with disordered eating/exercise:

- Provide assessment, including medical, psychosocial and psychiatric history
- Discuss the aims of therapy with the adolescent and her family (if appropriate)
- Be part of a multidisciplinary management team (which includes an experienced dietitian, a paediatrician or adolescent physician and a psychiatrist and family therapist)
- Coordinate management

ing an eating disorder.[11] It may also have a biological basis, as it is seen in rats, which, if food deprived and then placed in a running wheel, will run until they die, while rats that are not food deprived behave normally.[12]

What causes bulimic (episodic overeating) behaviour?

Episodes of overeating can occur during attempted dieting when people respond to their body's cues for food, and the greater the food restriction the greater the drive to eat. These episodes usually result in a positive energy balance, possibly to provide the body with excess energy for storage for the next lean time. The introduction of self-induced vomiting impairs the body's ability to recognise and respond appropriately to its energy needs; that is, by overeating after times of famine.

Binge eating is frequently associated with personality, and psychiatric and psychological difficulties. People with these problems may use eating, starving, excessive exercise and vomiting as ways of coping with their moods and feelings. Women who do this describe a sense of escape from their thoughts and feelings during and after binge eating, relaxation and feelings of relief after vomiting, the "highs" of starvation and excessive exercise, and the use of their behaviour for self-punishment.[13] These feelings are quickly replaced by feelings of depression and anxiety about their behaviour, which again lead to overeating in a vicious, self-perpetuating cycle.[14]

3: Current diagnostic criteria (*Diagnostic and statistical manual of mental disorders, 4th ed*[22]) for anorexia nervosa and bulimia nervosa

Anorexia nervosa (307.1)

A. Refusal to maintain body weight at or above a minimally normal weight for age and height (eg, weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarcheal females, amenorrhea, ie, the absence of the last three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following administration of a hormone, eg, estrogen).

Bulimia nervosa (307.51)

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1. Eating, in a discrete period of time (eg, within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.

2. A sense of lack of control over eating during the episode (eg, a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting or excessive exercise.

C. The binge eating and inappropriate compensatory behavior both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by both body shape and weight.

E. The disturbance does not occur excessively during episodes of anorexia nervosa.

Adolescents who binge eat show poor impulse control, depression, anxiety, perfectionism, confusion about feelings, and personality problems. Common comorbid diagnoses for patients with bulimia nervosa are post-traumatic stress disorder, borderline or other personality disorder, depression and anxiety disorders.[5,8]

Can we prevent the development of eating disorders in young women?

Four large school-based intervention studies have looked at this issue.[15-18] One program aimed at improving students' self-esteem, and reducing the focus on weight, food and dieting, appeared to help,[18] although such programs would need reinforcement at least every 12 months (randomised, controlled trial). The other studies aimed at providing information and resulted in little or no change in attitudes.[19,20] Intervention programs can be harmful, as they can glamorise eating disorders and unintentionally provide negative feedback to students about body image. Even trained teachers may unwittingly be poor role models.[21]

4: Proposed simple criteria for anorexia nervosa and anorexia-like eating disorder, and bulimia and bulimia-like eating disorder

Anorexia nervosa and anorexia-like eating disorder, or Negative-energy control disorder

Criteria

1. Maintenance of a negative energy balance*
2. Negative effect of behaviour and disordered thoughts on physical, psychological and social health†
3. No medical or major psychiatric illness accounting for the negative energy status

Features

- Fear of loss of control over eating or weight, body or exercise.
- Preoccupation with thoughts of eating, exercise, body weight or shape
- Usually losing weight or maintaining low body weight

Bulimia and bulimia-like eating disorder, or Episodic positive-energy control disorder

Criteria

1. Episodic positive energy balance that is NOT appropriate for overall energy balance‡
2. Negative effect of behaviour and disordered thoughts on physical, psychological and social health
3. No medical or major psychiatric illness accounting for the inappropriate energy balances

Features

- Fear and experience of loss of control over eating or weight, body, or exercise
- Preoccupation with thoughts of eating, exercise, body weight or shape
- Binge eating or episodic overeating
- May be normal weight, overweight or obese

* Apparent if a young woman is losing weight or maintaining a low weight by restricting her food intake (including limiting the variety of food eaten), inducing vomiting, chewing and spitting, exercising excessively or using recreational drugs, slimming tablets and laxatives. Body weight can be considered low if she must continually restrict her energy intake or increase her energy expenditure to maintain her chosen weight.

† Social unease and social anxiety are frequent findings among people with eating disorders. Withdrawal from friends and social occasions usually follows a history of normal, age-appropriate social interactions. Changes in mood, usually described by the family as unpredictable and labile, depressed and as "undergoing a personality change". Being untruthful, particularly about weight and eating, is a common family observation.

‡ Occurs if a person binge eats or episodically overeats excessive amount of food which would lead to unhealthy weight gain. These criteria apply to people who have episodic positive energy balances that require excessive exercise, starvation, self-induced vomiting or other unhealthy methods to compensate for their behaviour, or to overweight and obese people who do not compensate for their episodic energy excess. Episodic starvation or self induced vomiting without maintaining an overall negative energy balance and without binge eating is included in these criteria as weight gain would occur in the absence of these behaviours.

Improving the self-esteem of school students, encouraging communication, and helping students to be supportive of each other may prevent some young women from developing eating disorders. General practitioners can be helpful in educating school and community groups involved in adolescent care. In clinical practice, GPs need to be aware of the possible risk factors, triggers and perpetuating factors for eating disorders (Box 2).

Problems with current diagnostic criteria

Does a postpubertal adolescent woman who has been losing weight (in negative energy balance) for 12 months, who has no medical reason for her weight loss and is not particularly interested in her body weight and shape, have an eating disorder? She could be a medium-distance runner who has increased her training to improve her performance (current BMI, 17.5) or she may have changed to "healthy" (low fat) eating and exercising to be fit and healthy for her final-year school exams (current BMI, 16). If we apply the current criteria, set out in the *Diagnostic and statistical manual of mental disorders, fourth edition* (DSM-IV)[22] and shown in Box 3, neither of these women have anorexia nervosa, as their body weight and shape is not important to them.

If these women were unable to achieve a positive energy balance by eating more and exercising less over the next month, even after a consultation with a dietitian experienced in working with eating and exercise problems, an eating disorder should be considered. Many women are not aware they have an eating or exercise disorder until they are challenged and realise they are unable to change their eating and exercise behaviours and thinking. They may find it extremely difficult to trust advice or believe that change is necessary. In these two cases it is unlikely the women would believe anyone who told them that they had an eating disorder, particularly when they are informed that anorexia nervosa is associated with a desire for thinness and an overconcern with body shape and weight. These women are more likely to describe a fear of loss of control over their body, eating or exercise (Box 1).

Soon after beginning to lose weight, these two women may find their physical and academic performance improves. This will reinforce their behaviour and make any discussion about its negative effects appear irrelevant. After losing more weight, finding they are preoccupied with thoughts of food that interfere with reading and studying, and that their behaviour and feelings are affecting their daily activities, relationships and health, an eating disorder is more likely to be diagnosed, and the need for change more readily accepted by the women.

Additional problems with the current diagnostic criteria for the eating disorders relate to amenorrhoea and body weight measures.

One of the first physical signs of losing weight or being in negative energy balance can be secondary amenorrhoea; Patients who are taking oral contraceptive pills and experiencing a withdrawal bleed each month often think they have a "normal" menstrual cycle; and may erroneously report "normal" cycles to health professionals.

Amenorrhoea can occur at a high, normal or low body weight or BMI. It occurs more readily in younger teenage women and over a shorter time if their energy balance is negative.[10] It should not be considered an accurate measure of recovery, as age, exercise and time spent in positive energy balance may be interacting factors, particularly in young people. Secondary amenorrhoea can be a useful indicator, but not as a criterion for diagnosis of, or recovery from, an eating disorder.

A diagnosis of anorexia nervosa is usually reserved for people who attain and maintain low body weight, less than BMI 17.5 or 15% less than expected or ideal. BMI is a better measure of body fatness than body weight,[23] but there are no "normal" charts for girls at different stages of pubertal development or for women from different cultures. In reality, women who have lost more than 10 kg can show all the features of anorexia nervosa — secondary amenorrhoea, fear of loss of control over their bodies and a preoccupation with weight and eating associated with a fear of returning to obesity. Waiting until a person achieves a certain weight before the need for treatment is recognised is negligent.

Proposed criteria for early detection of eating/energy control disorders

Most eating disorder "experts" believe that early intervention will lead to a more complete recovery and reduce the chronicity of eating disorder. Simple criteria that allow early intervention are desirable.

It can be seen that certain questions in Box 1 — fearing loss of control over eating, and being preoccupied with weight, shape and eating — discriminate better than other questions between students and patients with eating disorders. If an eating disorder is suspected, it may be useful for physicians to ask young people questions about fear of loss of control over their bodies, eating, weight and shape as well as preoccupation with food, eating, nutrition, body weight and shape, as these may differentiate those at greater risk.

Box 4 lists simple clinical criteria for anorexia nervosa and anorexia-like eating disorders, and bulimia nervosa and bulimia-like eating disorders. I propose these criteria for use by family doctors working with young women, to identify those who may need physical assessment, help with their eating and exercise behaviour, and psychological support. For women identified by these criteria, GPs need to decide on and coordinate appropriate multidisciplinary assessment and treatment; in severe cases, referral to inpatient treatment at a specialised eating disorder unit may be necessary.

The future?

If our forebears had called eating and exercise disorders *energy control disorders* or *body control disorders* instead of describing them in terms of body image and eating, we may have a less confused picture of adolescent women's problems. What is needed is a team of researchers and clinicians involved with metabolism, nutrition, hormones, athletes, sports medicine, community medicine, psychosomatic medicine, adolescence, eating disorders and bone development to meet and discuss how to proceed. For example, do we need to differentiate athletic amenorrhoea from eating-disorder amenorrhoea, or eating disorders from exercise problems? Can treatment be simplified?

It may be useful to simplify our beliefs about eating and exercise disorders and combine our resources to help young women with their problems.

Acknowledgements

I thank Associate Professor Janice Russell, Dr Bianca Pettigrew, Catherine Boyd, Georgina Luscombe, Susan Hart and Therese Poland for contributing to the data and discussion of the matters presented in this article.

Competing interests

None identified.

References

1. Abraham S, Mira M, Beumont P. Eating behaviour among women. *Med J Aust* 1983: 2; 225-228.
2. Abraham S, O'Dea JA. Body mass index, menarche and perception of dieting among pre and post pubertal adolescent females. *Int J Eat Disord* 2001; 29: 23-28.
3. Abraham S, Lovell, N. Eating and exercise examination—computerized (EEE-C). Melbourne, Ashwood Medical, 2000.
4. Abraham S, Lovell N. Research and clinical assessment of eating and exercise behaviour. *Hospital Med* 1999; 60: 481-485.
5. Klump KL, Kaye WH, Strober M. The evolving genetic foundations of eating disorders. *Psychiatr Clin North Am* 2001; 24: 215-225.
6. Wade T, Martin NG, Tiggerman M. Genetic and environmental risk factors for the weight and shape concerns characteristic of bulimia nervosa. *Psychol Med* 1998; 28: 761-771.
7. Kendler KS, MacLean C, Neale M, et al. The genetic epidemiology of bulimia nervosa. *Am J Psychiatry* 1991; 148: 1627-1637.
8. Kendler KS. Twin studies of psychiatric illness: an update. *Arch Gen Psychiatry* 2001; 58: 1005-1014.
9. Eastwood H, Brown KM, Markovic D, Pieri LF. Variations in the ESR1 and ESR2 genes and genetic susceptibility to anorexia nervosa. *Mol Psychiatry* 2002; 7: 86-89.
10. American Academy of Pediatrics. Committee on Sports Medicine and Fitness. Medical concerns in the female athlete. *Pediatrics* 2000; 106: 610-613.
11. Fredrich R, Hu S, Raymond N, Pomeroy C. Leptin in anorexia nervosa and bulimia nervosa: importance of assay technique and method of interpretation. *J Lab Clin Med* 2002; 139: 70-71.
12. Davis C. Eating disorders and hyperactivity: a psychobiological perspective. *Can J Psychiatry* 1997; 42: 168-175.
13. Abraham S, Beumont PJV. How patients describe binge eating. *Psychol Med* 1982; 12: 625-635.
14. Abraham S, Llewellyn-Jones D. Eating disorders: the facts. Oxford: Oxford University Press, 2000.
15. Neumark-Sztainer D, Story M. Dieting and binge eating among adolescents: what do they really mean? *J Am Diet Assoc* 1998; 98: 446-450.
16. Wertheim EH, Paxton SJ, Maude D, et al. Psychosocial predictors of weight loss behaviours and binge eating in adolescent girls and boys. *Int J Eat Disord* 1992; 12: 151-160.
17. Huon GF. Dieting, binge eating and some of their correlates among secondary school girls. *Int J Eat Disord* 1994; 15: 159-164.
18. O'Dea J, Abraham S. Improving the body image, eating attitudes and behaviours of young male and female adolescents: a new approach which focuses on self esteem. *Int J Eat Disord* 2000; 28: 43-57.
19. Paxton SJ. Prevention implications of peer influences on body image dissatisfaction and disturbed eating in adolescent girls. *Eat Disord: J Treat Prevent* 1996; 4: 334-347.
20. Killen JD, Taylor CB, Hammer LD, et al. An attempt to modify unhealthful eating attitudes and weight regulation practices of young adolescent girls. *Int J Eat Disord* 1993; 13: 369-384.
21. O'Dea J, Maloney D. Preventing eating and body image problems in children and adolescents using health promoting schools framework. *J School Health* 2000; 70: 18-21.
22. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington DC: APA, 2000.
23. Gallagher D, Vidder M, Sepulveda D, et al. How useful is body mass index for comparison of body fatness across age, sex and ethnic groups? *Am J Epidemiol* 1996; 143: 228-239.

(Received 17 Dec 2002, accepted 22 May 2003) ❑