

# Eating Disorders



## Eating Disorders

### What are eating disorders?

"**Eating disorder**" is a phrase that describes conditions in which individuals engage in disordered eating. Eating disorders are not simply poor eating habits but are recognised mental health disorders in which emotional issues manifest in harmful eating habits. Eating problems in childhood and adolescence are very common. Eating disorders affect seven girls in every 1,000, and one boy in every 1,000. It usually begins to be a problem in teenage years, but can happen at any time. The most common types of eating disorders are anorexia nervosa, bulimia nervosa and binge eating disorder. Types of eating disorders include anorexia, bulimia and binge eating disorder, as well as other patterns of disordered eating. Overeating, under eating, purging, over exercising or a combination of these behaviours are frequent occurrences in everyday life for someone with an eating disorder, so much so that their health can suffer severely from poor nutrition and their normal daily routine becomes difficult. The main types of eating disorders include:

- ❑ Anorexia Nervosa
- ❑ Bulimia Nervosa
- ❑ Binge Eating Disorder

It is possible for these conditions to co-exist alongside one another.

### Common Eating Disorders

**Anorexia** is an eating disorder in which the sufferer is terrified of gaining weight and decreases the amount of food that (s) he will eat in an attempt to limit weight and body fat.

**Bulimia** is an eating disorder marked by the consumption of a great amount of food in one sitting and then the purging of this food by inducing vomiting or taking laxatives and/or diuretics. **Binge eating disorder** is also characterised by the consumption of large amounts of food at one sitting but does not include the purging of this food afterwards. Though eating disorders are often associated with different signs and symptoms, they are often connected to low self esteem, poor body image; environments obsessed with thinness, a lack of support systems and possibly even genetics.

There is no single cause of an eating disorder such as anorexia, bulimia and binge eating disorder, but rather it is accepted that a combination of personal, family, interpersonal, biological and socio-cultural factors influence the development of an eating disorder.

It is not known for certain what causes them, but many factors could play a part:

- ❑ Social pressure, particularly caused by the media idealising being thin. Losing weight can make us feel good and in control.
- ❑ Puberty - anorexia reverses some of the physical changes of becoming an adult.
- Family problems - saying "no" to food may be the only way for expressing the feelings.

- ❑ Depression and low self-esteem - binges may start off as a way of coping with unhappiness. Genes - it can run in families.

Though each of these disorders result in different eating behaviours, each occurs when sufferers cannot separate their emotions from their eating habits and this affects the way they eat and the amount they eat. Eating disorders can strike young or old, male or female, any race and any income level. However, eating disorders are, by some estimates, eight times more likely to affect women than men and are also more frequently found among younger women.

### Signs of Eating Disorders

Signs of eating disorders are many, but here are some of the signs and symptoms to look out for that may suggest someone has, or is on the verge of developing, an eating disorder:

- ❑ Only eating certain types of food
- ❑ Use of the bathroom immediately after eating
- ❑ Making excuses not to eat at meal times
- ❑ Obsession with body weight / being overweight
- ❑ Picking at food
- ❑ Rapid fluctuations in weight (weight loss or weight gain)
- ❑ Mood swings
- ❑ Excessive use of exercise

If eating disorder symptoms are recognised in the early stages of the disease, help can be sought more quickly making a successful recovery more likely.

## Factors that cause eating disorders

### 1) Stress

There are a variety of external factors that can cause the development of an eating disorder, and most of them represent some sort of crisis or disappointment to the individual. The loss of a loved one or life changes, such as moving homes or transferring jobs are seen as precipitating factors of eating disorders as they throw an individual's life off balance as well as cause significant stress though the individual's normal support system has vanished. Divorce and the loss of a job are also precipitating factors of eating disorders as not only do they bring major life changes, but often a financial insecurity as well.

In all of these cases, the resulting stress can be enough for an individual's poor coping strategies to fail and for them to turn to an eating disorder instead - whether knowingly or unknowingly. Unsuccessful attempts at dieting are precipitating factors of eating disorders as well, in that when "regular" diets fail, some individuals more quickly fall into eating disorders as a means to an end. Again, this may be consciously known or unknown to the individual.

## 2) Lack of Communication

People who are unable to communicate clearly and effectively often prefer to hold in their emotions, sometimes described as “swallowing” their emotions. This is particularly true of negative emotions such as anger, sadness or disappointment.

Rather than confronting another individual with these emotions, many individuals choose to remain silent but express their feelings and frustrations in other ways, including through abnormal eating disorders.

Some people also keep quiet but end up convincing themselves that they were the cause of the problem in the first place. This can lead to negative self-talk such as telling themselves that they are stupid or always cause problems. Either way, when emotions are not expressed but instead are projected onto food and eating behaviours, an eating disorder can result.

## Disturbed Relationships

Whether troubled personal relationships result from poor communication or poor communication results from troubled personal relationships, is immaterial, the fact of the matter remains that the two often develop hand in hand with an eating disorder.

More than simply inhibiting communication, however, troubled relationships also often serve to convince an individual that (s) he is unlovable, deeply flawed and unworthy of positive attention. To cope with this, frustrations may again be projected onto food and eating behaviours, particularly if an individual falls into the trap of thinking that if (s)he could just lose a little more weight then (s)he would be able to find, or be worthy of having, a loving relationship. Unfortunately, those with eating disorders may not simply engage in trouble with personal relationships of the romantic kind, but friendships and family relationships as well.

## 3) Ineffective coping strategies

When people are frustrated, angry, discouraged or sad they use a variety of coping strategies to get through the tough times. For many, this means engaging in a favourite activity, spending time with friends and family or enjoying solitary time in which they can pull themselves together.

For those who suffer from eating disorders, however, very often these coping strategies are actually their abnormal eating behaviours. Without any other behaviours to fall back on to get them through a rough patch, indulging their skewed views of food and eating help them feel as though they have retained some control on their lives. Sadly, and without even realising it, many of these individuals actually end up harming their health and the quality of their lives through what they believe are effective coping strategies.

Interpersonal factors such as poor communication skills, troubled personal relationships and ineffective coping skills have all been linked to eating disorders. Though these factors are not formal causes of eating disorders they have been seen to influence the development of them and inhibit recovery from them.

## Coping with the stress

Efficient coping skills may be able to avert the development of an eating disorder in that they should allow individuals to minimise their stresses and use other means to dispel a build up of stress. Many

of these coping skills are simple and can be used daily in order to keep stress from building in the first place. Commonly taught coping skills, which can be used in any part of life, include:

- Accepting that life brings disappointments and there will be hardly a perfect situation in life. Avoiding stressful situations. If reading fashion magazines makes people feel bad about themselves, they should skip them and focus on another activity instead.
- Scheduling time for hobbies. Regardless of which specific activities are enjoyable and relaxing, people should make time for them.
- Building a support system. People should cultivate a support system of friends and family who support their hopes and dreams and accept them for who they are.
- Breathing. When all else fails, individuals should remember to breath deeply, take time to think and reflect, and move forward only when they have formulated plans with which they are comfortable.

In order to avoid eating disorders, people need to develop efficient coping skills and support systems which can make them feel comfortable. So they can accept their flaws.

### How to avoid or prevent an eating disorder?

Eating disorders such as anorexia bulimia and binge eating are most prevalent in countries and cultures which place a high degree of importance upon being thin and presenting an appealing image. Most people with an eating disorder feel that they are not as thin, and therefore as successful, as they would like to be and use their eating behaviours to either attempt to rectify this (by restricting calories and losing further weight), or find relief from this (such as by bingeing and/or purging). Unfortunately there are no cures for eating disorders, but there is much that can be done to prevent an eating disorder from developing a healthy balance and healthy outlook on life, these are the two key means of preventing an eating disorder. A healthy balance in life means that an individual is able to balance work/school and personal life, a healthy diet with occasional treats, and exercising for fun with an appropriate amount of rest and relaxation. A healthy outlook is such that an individual can recognise the “big picture”, that weight and appearance are just one facet of a person. What is more, maintaining a healthy outlook allows an individual to remember that (s) he has both strengths and weaknesses, but does not allow him/her to get caught up in flaws.

To this end, individuals who routinely express dissatisfaction with their work, their personality or their appearance should consider getting expert advice before these thoughts take root. Family and friends can help individuals stay strong and prevent an eating disorder by:

- Praising an individual’s talents and strengths.
- Listening to, and discuss, an individual’s thoughts, feelings and fears.
- Supporting an individual’s hopes and dreams.
- ☒ Reminding an individual that a healthy body, not necessarily a slim body, is best. Encouraging an individual to explore hobbies in which (s) he shows an interest.
- ☒ Helping individual make new friends who are also supportive.
- ☒ Barring unrealistic and unhealthy diets and excessive exercise regimes.

Eating disorders such as anorexia, bulimia and binge eating disorder often affect individuals with low self esteem and low self confidence, and who feel overwhelmed by life.

## Treatment for Eating Disorders

The type of eating disorder treatment that is most appropriate will depend on the severity and type of eating disorder and the length of time it has continued, as well as the patient's individual preferences about the type of treatment they would like. If a person's physical health is in immediate danger because they are underweight or undernourished, hospitalisation may be necessary to restore it to an acceptable level. This is, however, the exception rather than the rule when deciding treatment for an eating disorder.

Various therapies are available, including behavioural therapy, psychotherapy, family counselling, group therapy and self-help groups, whereby patients can explore their issues with food and learn to develop healthy eating habits. Although lapses and relapses may occur once eating disorder treatment has begun, there is a far greater chance of recovering successfully if treatment is sought early on.

## Anorexia

Anorexia nervosa is an eating disorder in which an individual becomes so afraid of gaining weight and/or having body fat that (s) he severely limits the amount of food that (s) he will eat. Often anorexics will also exercise excessively in an attempt to burn off the calories that they do eat so that they will not gain any extra weight. Even when they are physically wasting away, and others perceive them as almost sickeningly thin, anorexics will still feel that their bodies are too heavy and continue to eat as little as possible. Unfortunately, without enough nutrients to nourish them, an anorexic's internal organs may fail and death can result.

### A fear of gaining weight

Perhaps the best known of the eating disorders, anorexia nervosa is a debilitating, dangerous, often life-threatening psychiatric illness. It is typically characterised by a person's thinness due to their fear of gaining weight (although this is not always the case) and their subsequent refusal to eat. A person with anorexia nervosa often has a very extreme fear of weight gain. They will refuse food and embark on prolonged periods of self-starvation in order to lose weight, and will continue to do so even when their weight has fallen below what is acceptable for their height and age. They are considered to be anorexic (or an anorectic).

### Distorted body image

Even when they are dangerously thin an anorexic person may still perceive themselves to be overweight because they have a distorted view of their body image. They are likely to be in denial of the fact they are underweight. The absence of eating is often coupled with a compulsion to exercise, and participation in physical exercise will probably be far greater than is acceptable, placing additional stress on the body. Purging behaviours such as self-induced vomiting, the misuse of diet pills, diuretics or laxatives may also be employed.

## Health risks of anorexia

If weight becomes dangerously low there is the risk of vital organs such as the heart and kidneys shutting down. Of all the eating disorders, and indeed all of the psychological illnesses, anorexia nervosa has the highest death rate. Long-term health risks of anorexia include osteoporosis, an impaired immune system, fertility problems, damage to bodily organs and mental health problems.

**Two types of anorexia nervosa** are recognised: the restricting type and the binge-eating type or purging type.

### Restricting Type

During the current period of anorexia nervosa there is no regular occurrence of bingeing or purging behaviour.

### Binge-Eating Type or Purging Type

During the current period of anorexia nervosa there is a regular occurrence of binge-eating or purging behaviour.

### Signs of Anorexia Nervosa

Signs of anorexia nervosa can be physical, psychological and behavioural. Here are some of the most common signs and symptoms.

**Note:** The presence of one or more of these symptoms does not necessarily indicate anorexia nervosa or any other eating disorder. Conversely, not all of these symptoms will necessarily be present in someone with anorexia nervosa.

### Physical symptoms of anorexia nervosa:

- ☐ Weight loss
- ☐ Weight of less than 85% of what is considered acceptable for height and age
- ☐ Thin and emaciated appearance
- ☐ Slow heart rate and low blood pressure
- ☐ Cold hands and feet and lower body temperature
- ☐ Poor circulation
- ☐ Digestive problems such as constipation and bloating
- ☐ Absence of menstrual cycle in women
- ☐ Lanugo, a layer of fine hairs covering the body to act as insulation
- ☐ Brittle hair and nails, dry skin, hair loss from scalp
- ☐ Hollow-looking eyes and pasty skin tone
- ☐ Weakness and tiredness, dizziness, palpitations, chest pain, shortness of breath
- ☐ Malnutrition and dehydration
- ☐ Stunted growth if anorexia occurs before or during adolescence
- ☐ Impaired immune system
- ☐ Anaemia
- ☐ Swollen joints
- ☐ Osteoporosis
- ☐ Fertility problems

### Psychological symptoms of anorexia nervosa:

- ❑ Mood swings
- ❑ Depression and irritability
- ❑ Difficulty concentrating and memory loss
- ❑ Ignoring feelings of hunger
- ❑ Concern about being overweight
- ❑ Distorted body image
- ❑ Preoccupation with food and calorie intake
- ❑ Constantly striving for perfection
- ❑ Denial of being underweight
- ❑ Low-self-esteem
- ❑ Fear of weight gain and being too fat
- ❑ Preoccupation with tidiness
- ❑ Obsessing about exercising
- ❑ Anxiety when eating in front of other people
- ❑ Feeling that happiness is undeserved
- ❑ Strong urge to be in control

### Behavioural symptoms of anorexia nervosa:

- ❑ Wearing baggy clothing to disguise a thin frame
- ❑ Not eating ,or
- ❑ Only eating certain types of foods and counting calories
- ❑ Frequently looking in the mirror and monitoring weight
- ❑ Excessive exercising to burn off more calories
- ❑ Binge eating
- ❑ Purging, including self-induced vomiting, and/or the misuse of laxatives, diuretics, diet pills or appetite suppressants
- ❑ Fainting and dizzy spells
- ❑ Preparing meals for others while refusing to eat meals with them
- ❑ Eating or exercising in secret
- ❑ Withdrawal from friends, family and social situations
- ❑ Inflicting self-harm
- ❑ Displaying controlling behaviour

### Causes of Anorexia Nervosa

Causes of anorexia nervosa include a number of interrelated physiological, psychological and social factors, which can increase the chances of somebody developing the disorder.

Some suggested causes of anorexia nervosa include:

#### Physiological / biological causes of anorexia

A genetic predisposition to developing anorexia may be partially responsible. If another family member has suffered with anorexia nervosa, the likelihood of developing it may be increased.

## Psychological / emotional causes of anorexia

Anorexia nervosa is associated with certain personality traits such as perfectionism, obsessiveness and withdrawal, as well as other psychological disorders such as anxiety, depression and obsessive-compulsive disorder. Of particular significance to anorexia is low self-esteem along with a negative, distorted body image.

Focusing on food and weight loss provides a diversion away from underlying psychological problems that may be too difficult to address or control.

## Social / behavioural causes of anorexia

The messages people get from society about how they should look give particular cause for concern. Western culture (particularly the media) promotes extreme thinness as the epitome of body perfection, success and happiness. This leads people to become dissatisfied with their own bodies, their self-esteem suffers and they turn to dieting as they feel the pressure to be thin. Anorexia nervosa can develop from the desperation to live up to unrealistic cultural expectations.

Difficult, strained relationships within the family that makes a person view themselves in a negative way may lead them down the path to anorexia, as may other pressures arising from school or in the work place.

## Diagnosing Anorexia Nervosa

An anorexia nervosa diagnosis will involve an analysis of the individual's physical signs and symptoms, along with their beliefs and behaviours.

A medical doctor will refer to a list of symptoms (or diagnostic criteria) to help them with making a diagnosis for anorexia nervosa.

## Diagnostic criteria for anorexia nervosa

- (a) Body weight is consistently 15% less (or lower) than that expected for height and age, or body mass index is 17.5 or less. This can be due to either weight loss, or failure to gain weight during growth.
- (b) Weight loss is caused by the avoidance of foods perceived to be fattening, along with one or more of the following behaviours: self-induced vomiting, purging, excessive exercise, use of appetite suppressants and/or diuretics.
- (c) Distorted body image perception driven by an intense, irrational fear of becoming fat, leads to the desire to remain at a low body weight.
- (d) Amenorrhoea (abnormal absence of a minimum of three successive menstrual cycles) in women, and loss of libido in men. There may be changes in growth hormone, cortisol, thyroid hormone and insulin.
- (e) Puberty in girls and boys may be delayed if the onset of anorexia nervosa is prepubertal, but once recovery from the illness is made, it will often progress normally.

## **Main treatments for anorexia nervosa:**

### **Physical health**

Individual's physical health should be assessed first, in particular to make sure they are not dangerously underweight and undernourished. Any medical complications, which have arisen due to the eating disorder, need to be taken care of.

### **Therapy**

The type of therapy that is most appropriate will depend on the patient's individual preferences and their particular eating disorder.

**Psychotherapy** - There are different types of psychotherapy which can be useful in addressing the underlying psychological causes of an eating disorder. Psychotherapy encourages positive thought patterns, changes behaviours and improves interpersonal relationships. In particular psychotherapy can help an anorexia sufferer change their perceptions of their body image and improve their self-esteem, as well as encourage them to develop a sensible attitude towards food and healthy eating habits.

**Family therapy** - Family therapy can be useful if the patient is living at home; the whole family can attend therapy sessions together. It can help to identify the trigger for the patient's anorexia, such as troubled relationships and problems within the family that may have led them to have a negative self-image. An example would be a parent inadvertently putting too much pressure on their child to do well at school, resulting in the child feeling as though they never quite live up to expectation. Family therapy will help the child and parents to deal with the problem together and help recovery from anorexia.

**Group therapy** - Group therapy sessions may or may not be run by qualified health professionals, and are attended by individuals with varying degrees of anorexia. Some people find great comfort and support from attending therapy sessions with other anorexics and are encouraged to beat the disorder

### **Medications**

Antidepressants can sometimes be helpful in treating anorexia. However, these will not help change an individual's attitudes and beliefs about food, or deal with any body image distortion and low self-esteem issues.

## Bulimia Nervosa

Bulimia nervosa more commonly known as „bulimia“ is an eating disorder marked by binges and then purges. During a binge a bulimic will eat a great amount of food in one sitting, but then purge by either inducing vomiting or taking a laxative or diuretic to expel this food. For bulimics, bingeing and purging becomes a cycle but they may never lose, or gain, enough weight to make it obvious that they have an eating disorder. Damage to the digestive tract, mouth, teeth and salivary glands is common among bulimics and the constant bingeing and purging mean that bulimics rarely keep in enough vitamins and minerals to remain healthy. These factors can have serious and long-lasting health effects.

### Health risks of bulimia nervosa

Long-term health risks include changes in body chemistry, erosion of tooth enamel due to vomiting and in extreme cases stomach rupture and death. A person with bulimia will not necessarily be thin; they may even be overweight which poses health risks of its own. People suffering with bulimia are often of a normal weight so it may go undetected for many years, with those close to them often having no idea they have the disease or that their health is suffering.

**Two types of bulimia nervosa are recognised: the purging type and the non-purging type.**

### Purging Type

During the current period of bulimia nervosa there has been a regular occurrence of self-induced vomiting, the misuse of laxatives, diuretics or enemas.

### Non-purging Type

During the current period of bulimia nervosa there has been no regular occurrence of self-induced vomiting, the misuse of laxatives, diuretics or enemas, but the person may have partaken in other compensatory behaviours such as excessive exercising or self-induced starvation.

## Causes of Bulimia Nervosa

Causes of bulimia nervosa include a number of interrelated physiological, psychological and social factors, which can increase the chances of somebody developing the disorder.

Some suggested causes of bulimia nervosa include:

### Physiological / biological causes of bulimia nervosa

Some people may have a genetic predisposition to developing bulimia, and therefore the risk they will develop the disease is increased.

Abnormal levels of serotonin in the brain (a chemical, or neurotransmitter used by nerve cells to communicate and which controls appetite and mood) are sometimes found in people with bulimia nervosa.

### **Psychological / emotional causes of bulimia nervosa**

Bulimia Nervosa can occur as a result of underlying emotional problems that are difficult to express or deal with. Bulimia provides the individual with an outlet for their emotional difficulties and helps them to feel in control, although in reality they are not in control at all.

Dissatisfaction with weight and body shape can lead to dieting, which can escalate into bulimia. Body image distortion, low self-esteem, feelings of helplessness, perfectionism, depression, anxiety and obsessive-compulsive disorder are all personality traits associated with bulimia.

### **Social / behavioural causes of bulimia nervosa**

Western culture promotes thinness as the image of success and happiness. This pressure to be thin can encourage people to start dieting, as they believe it will give them the results they need to make them happy and successful. If dietary habits get out of control in pursuit of the perfect body, bulimia nervosa can ensue.

Disturbed relationships within the family or a marriage/partnership can be a trigger for bulimia nervosa, as can stressful life events, such as bullying. Individual's who have been abused as a child sometimes go on to develop the disorder

## **Signs of Bulimia Nervosa**

Signs of bulimia nervosa can be physical, psychological and behavioural. Here are some of the most common signs and symptoms.

Note: The presence of one or more of these symptoms does not necessarily indicate bulimia nervosa or any other eating disorder. Conversely, not all of these symptoms will necessarily be present in someone with bulimia nervosa.

### **Physical symptoms of bulimia nervosa:**

- Irregular heartbeat
- Irregular menstrual cycle
- Fluctuations in weight
- Fertility problems
- Abnormal menstrual cycle
- Blisters on the back of the hand and fingers, caused by teeth rubbing during vomiting
- Dental cavities, erosion of tooth enamel and bleeding gums
- Swollen glands in the face and neck
- Digestive problems, such as indigestion, constipation and diarrhoea
- Sore throat
- Weakness, tiredness and fatigue
- Bloodshot eyes

- Stomach pains
- Fluid retention
- Dehydration
- Erosion of tooth enamel from coming into contact with stomach acid when vomiting
- Changes in body chemistry
- Mineral and electrolyte imbalances
- Stomach ulcers
- Malnutrition
- Epileptic fits
- Damage to kidneys
- In severe cases the stomach can rupture, or a heart attack may occur leading to sudden death

### **Psychological symptoms of bulimia nervosa:**

- Mood swings and irritability
- Low self-esteem
- Depression
- Anxiety
- Feeling a loss of control
- Overly conscious about physical appearance and body weight
- Obsession with food, dieting and exercise
- Feelings of withdrawal
- Perfectionism

### **Behavioural symptoms of bulimia nervosa:**

- Refusing to eat with other people
- Leaving the table straight after a meal to vomit
- Running water while in the bathroom to disguise the sound of vomiting
- Binge eating, sometimes at strange times such as in the middle of the night
- Misuse of laxatives, diuretics, enemas or diet pills
- Fasting
- Excessive exercising
- Frequently spending time alone and wanting privacy
- Obsessing about body weight
- Withdrawal from social activities

### **Diagnosing Bulimia Nervosa**

The diagnosis of bulimia nervosa focuses on an analysis of the individual's bingeing and purging behaviours along with their beliefs and attitudes. Unlike anorexia nervosa, substantial weight loss is not usually a symptom of bulimia nervosa.

A medical doctor will refer to a list of symptoms (or diagnostic criteria) to help them with making a diagnosis for bulimia nervosa.

## Diagnostic criteria for bulimia nervosa

- (a) The constant obsession with eating and the overwhelming desire for food leads to episodes of eating large amounts of food in short time periods.
- (b) There are efforts made to reduce the effect of eating foods perceived as fattening in the form of self-induced vomiting and other purging techniques, alternating episodes of calorie restriction, using appetite suppressants, thyroid preparations or diuretics. People with diabetes may refrain from using their insulin treatment.
- (c) There is an intense fear of becoming fat, which leads to the desire to reach a specific body weight much lower than is considered normal or healthy for height and age. In many cases, the bulimia follows an episode of anorexia nervosa, although the period of time between the two disorders may vary considerably.

## Treating Bulimia Nervosa

Treatment for bulimia nervosa includes therapy and medication, but in extreme cases if the patient's health is at risk, hospitalisation may be necessary.

### Main treatments for bulimia nervosa:

**Cognitive Behaviour Therapy** - Cognitive behavioural therapy is a type of psychotherapy, in which a bulimia sufferer has regular discussions about their problem behaviours with a therapist. The discussions will address the negative thoughts the person has about their weight and body shape, along with other reasons for bingeing and purging. They will then learn to recognise, understand and manage the situations that trigger these behaviours, and develop more positive ways of thinking. Cognitive behavioural therapy will help an individual to get back to a normal lifestyle by breaking the cycle of bingeing and purging and encouraging healthier eating patterns.

**Interpersonal Therapy** - Rather than focus on the bulimic behaviours themselves, interpersonal therapy deals with a person's relationships with other people in order to identify and change interpersonal problems that are associated with the bulimia. The aim is to help build relationships that are supportive instead of turning to bingeing and purging for emotional comfort.

**Self-help programme** - A self-help programme uses the same techniques therapists use in cognitive behavioural therapy, but is self-taught by the individual in their own time. Additional support and guidance should be offered as they work through the programme. As with cognitive behavioural therapy, the aim of the programme is to change negative thoughts into more positive ones with the effect of changing problem behaviours.

**Family therapy** - The individual attends therapy sessions with their family. The support of the family can help the person have confidence in themselves and help aid recovery from their eating disorder.

**Group therapy** - Group therapy sessions are usually run by a therapist, and are attended by individuals with bulimia. Some people find great comfort and support from attending therapy sessions with other bulimics and are encouraged to beat their eating disorder. It is important that group therapy sessions encourage recovery rather than the bulimic behaviours themselves.

**Medications** - Antidepressants can sometimes be helpful in the short-term as a treatment for bulimia. However, these will not address the underlying causes of bulimic behaviours and probably should not be considered as a long-term treatment for bulimia. They can also have side effects. It can take several weeks before antidepressants start to work.

Lapses and relapses may occur during the recovery process, but there is a good chance sufferers of bulimia will eventually be able to lead a normal life.

## Binge Eating Disorder

Binge eating disorder is a common eating disorder in which an individual regularly consumes a large amount of food in one sitting, or “grazes” constantly even when (s)he is not hungry or becomes physically uncomfortable from consuming so much food. Unlike bulimics, binge eaters do not purge after over-eating, nor do they routinely exercise excessively in an attempt to burn off the calories. Binge eating disorder can occur in individuals of any gender, race, age or socio-economic status, and because binge eaters often become overweight or clinically obese, they put themselves at risk for a wide variety of health conditions and diseases. Unfortunately, there is no recognised cure for binge eating disorder but there are a variety of treatment options that can be explored when binge eating disorder is diagnosed.

### Health Risks of Binge Eating Disorder

Binge eating disorder is likely to result in the sufferer becoming overweight or obese, although this is not always the case. Health problems that may arise include those that are associated with being overweight, such as high blood pressure, diabetes, heart disease, gallbladder disease, kidney disease, fertility problems, high cholesterol and some types of cancer. Compared with anorexia and bulimia, binge eating disorder has been accepted only recently as a serious eating disorder.

### Causes of Binge Eating Disorder

Causes of binge eating disorder include a number of interrelated physiological, psychological and social factors, which can increase the chances of somebody developing the disorder.

Some suggested causes of binge eating disorder include:

#### Physiological / biological causes of binge eating disorder

It is possible that sufferers of binge eating disorder have a genetic predisposition to developing it, as it has been found to run in families.

Researchers are also investigating the role of chemical imbalances in the brain (possibly hereditary) and irregular functioning of metabolic rate as possible causes.

## Psychological / emotional causes of binge eating disorder

A history of depression is found in up to half of sufferers with binge eating disorder. The disorder is also sometimes found alongside other psychiatric illnesses such as obsessive-compulsive disorder.

A difficulty dealing with emotional states such as stress, boredom, anger, anxiety, low self-esteem and general unhappiness are thought to trigger the use of food as a coping mechanism.

## Social / behavioural causes of binge eating disorder

It is thought that dieting behaviours may sometimes contribute to binge eating disorder, as some people have binge eating episodes after restricting their food intake for a period of time.

Binge eating disorder has also sometimes been found to be associated with a history of substance or alcohol abuse.

## Signs of Binge Eating Disorder

Signs of binge eating disorder can be physical, psychological and behavioural. Here are some of the most common signs and symptoms.

Note: The presence of one or more of these symptoms does not necessarily indicate binge eating disorder or any other eating disorder. Conversely, not all of these symptoms will necessarily be present in someone with binge eating disorder.

## Physical symptoms of binge eating disorder:

Being overweight or clinically obese (defined by a Body Mass Index of 25 >)

- Fluctuations in weight
- High blood pressure
- Breathlessness
- Heart disease
- Type 2 diabetes
- Digestive problems
- Joint and muscular aches and pains
- Chest pains
- Headaches
- Malnutrition due to eating junk food with little or no nutritional value
- Stroke
- High cholesterol
- Gall bladder disease
- Certain types of cancer
- Respiratory problems
- Kidney disease
- Arthritis

### Here are some of the psychological symptoms of binge eating disorder:

- Finding comfort in food
- Feeling a loss of control
- Depression and low self-esteem, generally feeling miserable
- Difficulty dealing with emotions such as anger and stress
- Feelings of guilt, disgust and shame after a binge-eating episode
- Embarrassment about eating large amounts of food
- Suicidal thoughts
- Negative feelings towards food

### Here are some of the behavioural symptoms of binge eating disorder:

- Hiding food and empty containers of food
- Eating more quickly than usual
- Eating when not even hungry
- Binge eating (eating massive amounts of food) in secret and at odd times
- Feeling uncomfortably full after a binge-eating episode
- Yo-yo dieting
- Cycles of bingeing and dieting
- Avoidance of social situations, work or school
- Obsessing about and criticising physical appearance
- Eating alone even when eating normally
- Difficulty sleeping
- Alcohol abuse

### Diagnosing Binge Eating Disorder

Diagnosis for binge eating disorder takes into account the frequency and duration of binge eating episodes and the individual's feelings and attitudes towards their behaviour.

A medical doctor will refer to a list of symptoms (or diagnostic criteria) to help them decide if someone has binge eating disorder.

### Suggested diagnostic criteria for binge eating disorder

#### A. Recurring episodes of binge eating. The two characteristics of a binge eating episode are:

1. Eating a much larger amount of food than most people would consider normal under similar circumstances and within the same time frame (eating may continue for several hours).
2. While eating, there is a feeling of loss of control over the amount of food or type of food being consumed.

#### B. Binge eating episodes are related to at least three of the following:

1. eating until feeling uncomfortably full.
2. eating very faster.
3. eating large quantities of food even when not hungry.

4. eating alone due to the embarrassment of over eating. (5) feelings of disgust, depression, or guilt after a binge.

C. There is obvious distress concerning binge eating behaviour.

D. On average, binge eating takes place twice weekly, and has done so for 6 months.

E. There are no recurring efforts to compensate for binge eating, such as purging or excessive exercise. The disorder occurs at times other than during episodes of anorexia nervosa or bulimia nervosa.

Binge eating disorder treatment can take several approaches.

In short, there are two issues that need to be addressed in the treatment of binge eating disorder: obesity, for people who are overweight from consuming too much food, and binge eating episodes themselves.

Treatment experts differ somewhat in their beliefs about which of these should be tackled first.

### **Main treatments for binge eating disorder: Therapy**

**Cognitive Behavioural Therapy** - Cognitive behavioural therapy is a type of psychotherapy, in which the individual has regular discussions about their binge eating with a therapist. The discussions will address the negative thoughts the person has about themselves along with their reasons for binge eating, such as low self-esteem, poor body image, depression and anxiety.

They will learn to recognise and monitor the situations that trigger binge eating episodes, and discover how to deal with stress and difficult situations in a way other than by binge eating. Cognitive behavioural therapy aims to eliminate unhealthy eating habits.

**Interpersonal Therapy** - Interpersonal therapy helps the person to identify and deal with relationship problems that may be occurring with a partner, family member or friend. The aim is to help the person build relationships that are supportive rather than destructive, so that they no longer feel the need to turn to binge eating for emotional comfort.

### **Medication**

In some cases antidepressants may be prescribed as part of the treatment for binge eating disorder.

### **Weight Loss Management Programmes**

While many people with binge eating disorder have obesity-related health complications and need to lose weight, it is not usually enough to just 'go on a diet', as this does not address the root cause of the problem.

There are weight loss management programmes, which focus on helping people to lose weight. However, someone with binge eating disorder should only attend such a programme under medical supervision, as dieting itself can lead to binge eating, making matters worse.

The sooner binge eating disorder treatment is sought, the better, as obesity has negative consequences for long-term health, such as heart disease, diabetes, high blood pressure and stroke.

## Geophagy

Geophagy is the practice by which an individual routinely eats soil substances such as chalk, soil, mud and clay. The cause of geophagy is unknown, but in some parts of the world it is practiced as a means of completing the diet and is therefore considered an adaptive behaviour and not an eating disorder. In the UK, however, geophagy is most often diagnosed as a type of pica, and therefore an eating disorder, and it is most often diagnosed in children and pregnant women. As with the ingestion of any type of non-food substance, the consumption of soil substances can lead to extreme health concerns and so should be treated by a medical professional as soon as possible.

### Symptoms of Geophagy

There are only two real signs of geophagy, which are the craving and eating of soil substances including chalk, soil, sand and mud. These eating behaviours may or may not be conducted in secret, though soil substances are rarely the main type of substance consumed by an individual. In fact, hardly ever does geophagy prohibit an individual from consuming an otherwise normal and healthy diet.

### Diagnosing Geophagy

Geophagy is usually only discovered when an associated health problem such as an intestinal blockage, intestinal perforation or tear, dental injury, poisoning or parasitic infection strikes and an individual is rushed to a surgery or hospital. During the medical investigations blood tests will usually be carried out which determine if a mineral deficiency or anaemia could be the cause of geophagy (as has been documented in many cases). If no such medical emergencies or investigations occur, then geophagy can remain undetected for some time.

Geophagy is formally diagnosed as a type of pica, and therefore an eating disorder, in individuals who have routinely consumed non-food substances for at least a month and for whom this behaviour is inappropriate to their developmental stage. However, geophagy is not diagnosed as an eating disorder if soil substances are consumed by an individual as part of a recognised cultural or religious practice. If this is the case, then geophagy is recognised as a type of traditional or adaptive behaviour and not as a type of pica.

### Treating Geophagy

There is no recognised cure for geophagy, and the type of treatment recommended will depend upon the type of geophagy that is diagnosed. If geophagy is recognised as a traditional or adaptive behaviour then there will likely be no treatment plan recommended. If, however, geophagy is believed to result from a nutritional deficiency then vitamin or mineral supplements will likely be prescribed. But if geophagy is diagnosed as having a psychological basis then a treatment plan appropriate to this diagnosis will likely include counselling or talk therapy, family counselling, cognitive behaviour therapy, attendance at support groups, and nutritional education, counselling and planning.

Geophagy is the practice of eating soil substances and may be either a type of pica and therefore an eating disorder or a traditional or adaptive behaviour as recognised in certain cultural and religious groups.

## Pica

Pica is an eating disorder in which an individual is drawn to eating, non-nutritive substances such as chalk, soil, paper, sand, plaster, paint chips and more. The cause of pica is unknown, but very often pica is diagnosed in children, connected to a developmental disorder or emerges during a pregnancy. In children younger than two years old eating such substances is usually explorative and is not considered a disorder, however those older than two years of age who continue to be attracted to, and consume, non-food items should be examined by a medical professional as eating such items can have a negative impact on an individual's overall physical health.

### Signs of Pica

There are only two main signs of pica, which are the craving and eating of non-food substances. In addition to chalk, soil, paper, sand, plaster, and paint chips, individuals with pica may also be drawn to and enjoy eating glue, faeces, insects, leaves, gravel, clay, laundry detergent or starch, baking soda, cigarette ashes or butts, ice, hair, soap and buttons. These eating behaviours may or may not be secretive, and usually do not prohibit the individual from consuming a relatively normal diet otherwise. In adults such as pregnant women it is often recognised that eating such substances are abnormal, but very often shame or embarrassment prohibits individuals from seeking a diagnosis and treatment.

### Diagnosing Pica

Pica is usually only discovered when a health problem occurs, so if no major health concerns emerge then pica can remain undetected for months or even years. Very often pica is detected when an individual suffers from an intestinal blockage, intestinal perforation or tear, dental injury, poisoning and/or parasitic infection associated with eating non-food substances. Blood tests will usually be carried out during an investigation into pica to determine if a mineral deficiency or anaemia could be the cause.

Pica is diagnosed in individuals who have routinely consumed non-food substances for at least a month, for whom this behaviour is inappropriate to their developmental stage (for example, who are over two years of age) and who do not consume these substances as part of a recognised cultural or religious practice.

### Treating Pica

There is no recognised cure for pica, and the type of treatment recommended will depend upon the

type of pica that is diagnosed. For example, if pica is caused by a nutritional deficiency then this will usually be remedied with supplements. If, however, pica is diagnosed as having a psychological basis, such as with an obsessive compulsive disorder, then treatment appropriate to this diagnosis will result. Other common methods of treating pica may also include counselling or talk therapy, family counselling, cognitive behaviour therapy, attendance at support groups, and nutritional education, counselling and planning.

## Children and eating disorders

Children who are still growing and developing need a healthy diet to fuel all of this activity. At times children go through food phases or become picky eaters but these phases are distinct from eating disorders such as anorexia, bulimia and binge eating disorder.

Unfortunately, eating disorders are on the increase among older children and teens and most develop these disorders between 11 and 13 years of age. The good news is that there is much that can be done to prevent eating disorders from developing, and many signs that can alert family and friends to the need for professional help.

### Preventing Eating Disorders in children

Very few young children develop eating disorders, but even by the end of primary school children are beginning to become interested in the opposite sex, aware of fashion, trends and personal appearance and to drift into puberty when they find their bodies changing very rapidly and without their consent.

At this time many girls begin to become curvy and develop breasts, as well as retain a little more weight, which can be a danger period if they are determined that they must remain at a certain weight or size of clothing. Family and friends can help prevent eating disorders at these ages by:

- Insisting upon a varied, healthy diet for everyone.
- Encouraging appropriate amounts of exercise for health and fun. Barring dieting for children.
- Engaging in regular discussions about school, life, dreams, etc with all children.
- Listening to children's thoughts on weight and body image.
- Helping children retain realistic expectations about healthy weight and image.
- Praising children's talents and skills.
- Reminding children regularly that they are loved and valued.

### Common Signs of Eating Disorders in children

Many children are able to hide the signs and symptoms of eating disorders for months or even years, which can put their health at great risk. There are many behaviours that can signal an eating disorder, however, such as:

- Significant weight loss or gain.
- Continuous dieting or discussions of dieting. Fear of weight gain.
- Persistent preoccupation with food/eating/weight.
- Persistent preoccupation with fashion, clothes sizes and/or personal appearance. Eating while alone or in secret.
- Hidden food or laxatives/diuretics.
- "Grazing" or eating all day or for as long as food is on offer. Vomiting – or regularly retiring to the toilet – after meals.
- Frequently running the taps while in the toilet (to cover evidence of vomiting). Swollen cheeks and/or bad breath (from vomiting).
- Excessive exercising to burn calories.

## Disordered eating

"Disordered eating" is a term used to describe eating habits or patterns that are irregular. Many different types of disordered eating habits exist, but for the most part these habits do not add up to a diagnosis of an eating disorder.

## Types of Disordered Eating Habits

Disordered eating habits can include:

- excluding whole food groups (for example, all fats or all carbohydrates), eating only at particular times of the day,
- eating only specific foods, eating only foods of a specific colour,
- eating only foods of a specific texture,
- not eating certain foods together in a sitting
- not eating specific foods from the same plate can all be types of disordered eating.

Sometimes these habits have formed in childhood, when someone was simply labelled a picky eater, but such patterns can also develop in a quest to lose weight or as coping mechanisms against emotional stress.

## Disordered Eating and Eating Disorders

Disordered eating habits are not necessarily eating disorders. In fact, these habits do not generally result in a diagnosis of an eating disorder such as anorexia or bulimia. But they may be diagnosed as eating disorders not otherwise specified, sometimes referred to as EDNOS. This diagnosis is usually based upon the fact that a person's eating is disordered such that (s) he meets some criteria for a diagnosis of an eating disorder but not all of the required criteria. For example, a girl who fits all of the criteria for anorexia but remains within a normal weight range or continues to have menstrual periods may be diagnosed with an EDNOS.

Someone who binge eats and purges, but not at a frequency regular enough to be diagnosed as bulimic, may also be diagnosed with an EDNOS. Like recognised eating disorders, eating disorders not otherwise specified are diagnosed by mental health professionals.

## Dealing with Disordered Eating

Disordered eating may result from childhood habits, a desire to lose weight or as a means of coping with emotional stress. Depending upon why an individual chooses to engage in disordered eating habits reveals more about how to help these individuals.

For example, those who have developed disordered eating in a quest to lose weight can often benefit from the help of a professional nutritionist who can guide them towards more healthy eating choices and methods of shedding unwanted weight. But someone who has turned to disordered eating to cope with their emotions may be helped more by visiting a mental health professional such as a therapist or counsellor who guides him or her towards more healthy means of coping with their stress.

The term "disordered eating" literally describes eating patterns that are irregular or disordered. There are many types of disordered eating, and while most do not add up to an eating disorder some may be diagnosed as an eating disorder not otherwise specified (EDNOS). Discovering why an individual has turned to disordered eating habits should help in guiding him or her back towards more healthful eating habits.

## Coloured coded eating

Colour coded eating results when a person makes his or her food choices based on the colour of a food. This is a type of disordered eating that can be detrimental to health if an individual can not obtain all needed nutrients from the foods that (s)he will eat. Overcoming eating by colour may require professional help if a disordered eater's habits are strict enough to prohibit overcoming such eating patterns by his or herself.

### **Eating By Colour**

Eating by colour literally means that an individual will only eat foods of a certain colour, or will reject foods based solely on their colour. For example, a disordered eater may decide that (s) he will eat yellow foods, so yellow peppers are acceptable, but that (s) he may not eat orange foods, orange peppers are not. Similarly, a disordered eater may eat green foods, so broccoli and peas are acceptable, but not red foods, so red peppers and strawberries are not. Some disordered eaters may even eat all foods except for one colour. The defining characteristic of this eating habit, however, is to accept or reject foods based on colour rather than taste, texture, nutrition or any other variable.

### **Eating the Rainbow**

“Eating the rainbow” is a relatively new term that urges people to eat food of a variety of colours. This phrase became popular when it became known that foods of different colours contain different nutrients, so in order to have the most balanced diets foods of a variety of colours are needed. Unfortunately, individuals whose disordered eating is manifested in colour coded eating can not eat a rainbow of different foods. This means that such disordered eaters will automatically keep themselves from getting the most balanced diet possible. While taking vitamins or supplements may help to make up for missed nutrients, these items should not be taken without medical approval.

### **Overcoming Eating by Colour**

Overcoming eating by colour may seem as easy as including more colourful foods in an individual’s diets, but if it were this easy to overcome many disordered eaters would not have fallen into their patterns in the first place. Instead, disordered eaters must recognise why they began to colour code their foods. Are there connotations with foods or colours? Did colour coding once serve a purpose? Did it begin as a method of dieting? Is there a measure of stress relief in this type of eating? By answering these questions and getting to the root of the colour coding, disordered eaters will be more likely to understand their habits and thus how to overcome them. However, some disordered eaters may find that they can not overcome eating by colour on their own. In this case the help of a dietician, nutritionist, counsellor or therapist may be invaluable to those trying to overcome colour coded eating.

Colour coded eating is a type of disordered eating in which foods are accepted or rejected based on their colour. Overcoming this type of disordered eating will require an individual to investigate what purpose eating by colour serves and why (s) he turned to this habit in the first place.

### **Eating according to the time**

Eating according to the time is a type of disordered eating in which an individual will only eat food at specific times of the day, or only eat for a set amount of time when (s)he does choose to eat food. This type of disordered eating may be undertaken as a means of dieting to lose weight, or it may be undertaken as a coping mechanism in order to deal with emotional stress. Overcoming this type of disordered eating will depend upon why the individual chose to undertake such eating habits in the first place.

### **Eating According to the Time of Day**

Some disordered eaters choose to eat only at particular times of day. For example, some people may feel that they can not eat food after a particular time of night out of fear that the calories will not be burned off and they will then gain weight. Similarly, some people may feel that they can only eat "heavy food" such as carbohydrates in the morning so that they can be sure to burn them off during the day. Still other people may assign types of food to particular times of day, for example carbohydrates in the mornings, proteins at mid-day and fruits and vegetables in the evening. Any food rules that are depended upon the time of day can be a type of disordered eating.

### **Eating with a Time Limit**

Some disordered eaters also set time limits as a part of their eating habits. These people often allow themselves to eat whenever they choose, but only for a set amount of time. This can be a behaviour similar to binge eating in which a disordered eater allows him or herself to eat whatever (s)he wants, so long as (s)he adheres to the time limit, or it may be that during these blocked eating sessions the individual follows other eating patterns as well. These patterns may also include eating particular foods depending on the time of day, eating food by texture or eating food by colour.

### **Overcoming Eating According to Time**

Like most disordered eating patterns, the best way to overcome eating according to time is to investigate why the disordered eater has developed this habit in the first place. Very often disordered eating begins as a way to lose weight or as a means of coping with emotional stress, but these are not the only reasons that someone may fall into the habit of eating at specific times or for specific amounts of time. Some people may have food allergies that they are not aware of, and it may be that they are better able to cope with their reactions at particular times of day. Others may have been "grazers" and would eat small amounts quite often and setting a limit was a way to try to consolidate their eating into one main meal.

### **Eating by food type**

Eating according to the food type is another disordered eating habit, which often starts as a desire to lose weight, such as in an effort to cut out all foods containing fat, sugar or carbohydrates. However, individuals who no longer eat whole "categories" of food are not able to eat a well balanced diet. In order to gain the best health possible, disordered eaters must be taught to include a wide variety of foods in their diets.

### **Eating By Food Type**

Eating by food type can often come about as means of dieting. For example, popular diets that advocate cutting out whole categories of food (such as all carbohydrates) can spur an individual into thinking of that food category as unacceptable. It may also be that an individual develops food type aversions by him or herself.

For example, a disordered eater may decide that all baked items are "bad" while all steamed items are "good," or that rice is "bad" while turkey is "good." When an individual loses perspective about how food affects the body and why the body needs a wide variety of nutrient-rich food, including fat, sugar and carbohydrates, disordered eating is more likely to creep into his or her daily habits.

### **Disordered Eating and Dieting**

Eating by food type may be thought of simply as a method of dieting, rather than as disordered eating. This may start when an individual begins to divide foods and food groups into “yes” or “no” foods. “Yes foods,” even if the individual does not think of them as such, are foods that the individual is allowed to eat because they are acceptable in his or her diet. “No foods” are foods that the individual feels are inherently unacceptable and will sabotage his or her ability to lose weight.

However, such blanket bans on these foods tends to indicate that an individual has lost the ability to understand which foods and types of foods affect their health in certain ways. When an individual fails to understand that food itself has no inherent good or bad value (s) he is very likely to begin categorising it and cutting out those that (s) he feels will adversely affect dieting as opposed to health.

### **Eating a Well Balanced Diet**

Those who eat by food type must learn what a well balanced diet means and how all food types fit into a well balanced diet.

### **Eating by texture**

People who engage in eating by texture make their food choices based on how food feels in their mouths rather than by its nutritional value or even by its taste. However, eating by texture may also indicate other conditions so those who notice loved ones rejecting or accepting food based on texture should investigate why this is so.

### **Eating By Texture and Disordered Eating**

Eating by texture is a common type of disordered eating. When it is not indicative of another condition, eating by texture means that an individual has decided to sort his or her food choices by the way that foods feels rather than by how it tastes or if it is required for a balanced diet. For example, some disordered eaters may choose only foods that require chewing with the thought that this action may burn extra calories.

Other disordered eaters may choose only foods that “squish” in their mouths because they prefer that feeling to foods that “crunch.” While there is nothing inherently wrong with enjoying some textures over others, if this preference leads to eliminating foods required for healthy eating then it will adversely impact the body and overall health.

### **Eating By Texture and Other Conditions**

Eating by texture is another condition of disordered eating. For example, some individuals with Attention Deficit Disorder (ADD)/Attention Deficit Hyperactivity Disorder (ADHD) report a hypersensitivity to the texture of food that makes certain foods intolerable to them.

Sensory Integration Disorder can also leave individuals unable to tolerate certain textures of food. Individuals with Rett Syndrome may also have a low texture tolerance as related to their food. Because there are obviously reasons other than simple disordered eating that may be related to eating by texture, further investigations should be carried out when eating by texture is noticed.

### Overcoming Eating By Texture

It may seem that eating by texture can be overcome by simply learning to appreciate different food textures, but this is not so easy when a food texture can make an individual choke, gag or even vomit. Some individuals may be able to consciously begin to add more foods and textures into their diet but others may need professional help to explore why they react so violently to certain foods. Still others may find that changing the texture of a food, such as by making smoothies out of crunchy fruits and vegetables, can help them add nutrients to their diet without having to eat a texture that they do not enjoy.

However, forcing someone to eat foods with textures that are despised is not a good idea as it will likely lead to that individual avoiding the food even more. Rather, those who eat by texture must be the ones to decide that they want more food choices in their diet and to design, or seek help to design, ways to make this possible.