ANOREXIA NERVOSA

An eating disorder characterized by the maintenance of a body weight below average, fear of gaining weight, and a distorted body image.

♂ Diagnosis   ♀ Male & Female

Related Diagnoses:
Anovulation | Menstrual cycle disorders | Amenorrhoea | Oligomenorrhea | Hypoandrogenism

About Anorexia Nervosa

Individuals suffering from anorexia nervosa (AS) often have a body weight well below average. It is also characterized by inappropriate eating habits, and the fear of gaining weight. Weight is often maintained through starvation and/or excessive exercise. Anorexia nervosa is often coupled with a distorted self-image which may be maintained by various cognitive biases that alter how the affected individual evaluates and thinks about her or his body, food and eating. Affected individuals often view themselves as "too fat" even if they are already underweight. They may practice repetitive weighing, measuring, and mirror gazing, alongside other obsessive actions to make sure they are still thin, a common practice known as "body checking". Complications may include osteoporosis, infertility, and heart damage among others. Women will often stop having menstrual periods.

There are two types of anorexia nervosa: restricting and binge-purge. The illness has many similarities with bulimia nervosa and other eating disorders. It is not uncommon for patients to move from one type of eating disorder to another.

As for the causes, there is evidence for biological, psychological, developmental, and sociocultural risk factors, but the exact cause of eating
disorders is unknown. There appears to be some genetic components; twin studies have shown a heritability rate of between 28 and 58%. Another contributing factor could be low self-esteem, perfectionism or family situation.

Anorexia nervosa is more likely to occur in a person's pubertal years, especially for girls. Female students are 10 times more likely to suffer from anorexia nervosa than male students. Sociocultural studies have highlighted the role of cultural factors, such as the promotion of thinness as the ideal female form in Western industrialized nations, particularly through the media. A moderate thesis is that a specific cultural factors trigger the illness which is determined by many factors including family interactions, individual psychology, or biological predisposition. Early theories of the cause of anorexia linked it to childhood sexual abuse or dysfunctional families; evidence is conflicting, and well-designed research is needed. Media are accused of being the principal factors behind body dissatisfaction, concerns about weight, and disordered eating behaviour. However, there is no evidence that they are a cause of eating disorders, and advances in neuroscience point to a more complex combination of genetic and environmental influences.

Regarding males with anorexia nervosa, their history will include changes in sexual functioning, including a decrease in sexual drive. Physical exam will note the general degree of emaciation and decline in lean muscle mass. Laboratory studies in the male should include serum testosterone level. Testosterone declines in proportion to weight loss. Testicular examination will often reveal testes that are small.

**Associated Diseases**

Bone loss, heart failure, kidney failure, amenorrhea (cessation of the menstrual period), reduced function of the gonads, and in extreme cases, death. Furthermore, there is an increased risk for a number of psychological problems, which include anxiety disorders, mood disorders, and substance abuse. Many individuals with anorexia nervosa often develop other types of eating disorders as well. Up to 50% of individuals with anorexia nervosa develop characteristics of bulimia nervosa over the span of their lifetime.

**Complications**

Several organ systems can be affected by AN and it can lead to premature death. AN has the highest mortality rate of any psychological disorder. The mortality rate is 11 to 12 times higher than expected, and the suicide risk is 56 times higher; half of women with AN achieve a full recovery, while an additional 20–30% may partially recover. Not all people with anorexia recover completely: about 20% develop anorexia nervosa as a chronic disorder. If anorexia nervosa is not treated, serious complications such as
heart conditions and kidney failure can arise and eventually lead to death. The average number of years from onset to remission of AN is seven for women and three for men. After ten to fifteen years, 70% of people no longer meet the diagnostic criteria, but many still continue to have eating-related problems.

**Risk factors**

- food restriction
- family history
- other type of eating disorder

**Impact on fertility**

Even though women with anorexia nervosa experience menstrual disturbances, there is still a great chance that these women will conceive. According to several researchers, women who had anorexia nervosa did not differ on rate of pregnancy compared to women without any history of an eating disorder. Women with anorexia nervosa frequently experience amenorrhea (absence of menstruation), thus, it might take them longer time to conceive. Amenorrhea is a diagnostic criterion for anorexia nervosa and should last at least 3 months. This can be explained be significant decrease of estrogen due to caloric intake restriction or excessive exercise. Uterus regression to the prepubertal size due to significant weight might be another factor causing amenorrhea.

Unplanned pregnancy is a risk in anorexia nervosa. The reason for that might be that these women believe that with irregular menstruation the contraception is not necessary and that it is unlikely for them to get pregnant.

Altogether, women with anorexia can become pregnant, nevertheless, special attention should be paid to the nutrition and to the mental state of a woman during pregnancy and after delivery. It is necessary to assess a history of eating disorder early in pregnancy in order to prevent possible physical and mental health consequences not only for a woman suffering with anorexia nervosa but also for her children. Overall, anorexia nervosa is highly comorbid with depressive and anxiety disorders; mainly during the perinatal period.

**Prevention**

There is no guaranteed or known way to prevent AN. Nevertheless, it is crucial to keep a healthy view of self and others. Besides that having a healthy
approach to food and exercise can prevent the onset of disorder. Also, if the problem is detected, it is recommended to seek a professional help and start the treatment as early as possible.

Proper nutrition, refeeding and screening for symptoms of depression and/or anxiety is also highly important. Furthermore, finding the additional support of the patient’s partner, spouse, parents or other family members in the therapeutic process can be crucial.

Additionally, the transition to motherhood may be an opportunity for a woman for recovery from eating disorders. Engaging women with anorexia nervosa in treatment during pregnancy, modifying eating habits and change in weight gain, could lead to permanent change in eating behaviour. Treatment may be especially necessary in the immediate months following birth. To prevent recurrence of symptoms of anorexia nervosa, social support and increased attention in the postpartum period can be vital.

Symptoms

As was already mentioned above, anorexia nervosa is an eating disorder that is characterized by attempts to lose weight, sometimes to the point of starvation. A person with anorexia nervosa may exhibit a number of signs and symptoms, the type and severity of which may vary in each case and may be present but not readily apparent. Anorexia nervosa, and the associated malnutrition that results from self-imposed starvation, can cause severe complications in every major organ system in the body. Hypokalaemia, a drop in the level of potassium in the blood, is a sign of anorexia nervosa. A significant drop in potassium can cause abnormal heart rhythms, constipation, fatigue, muscle damage and paralysis. Individuals who are diagnosed with anorexia may also exhibit mood or obsessive-compulsive disorder. Symptoms for a typical patient include:

- Refusal to maintain a normal body mass index for their age
- An intense fear of gaining weight
- A distorted body image
- Amenorrhea, the absence of three consecutive menstrual cycles
- Obvious, rapid, dramatic weight loss
- Obsession with calories and fat content of food
- Preoccupation with food, recipes, or cooking
- Dieting despite being thin or dangerously underweight
- Purging: uses laxatives, diet pills, ipecac syrup, or water pills; may engage in self-induced vomiting; may run to the bathroom after eating in order to vomit and quickly get rid of the calories (see also bulimia nervosa).
- May engage in frequent, strenuous exercise
• Perception of self to be overweight despite being underweight.
• Becomes intolerant to cold and frequently complains of being cold.
• Depression
• Rapid mood swings
• Solitude: may avoid friends and family; becomes withdrawn and secretive.
• Hair loss or thinning
• Tooth decay
• Fatigue

Therapies

Self therapy

There is no conclusive evidence that any particular treatment for anorexia nervosa works better than others; however, there is enough evidence to suggest that early intervention and treatment are more effective. Treatment for anorexia nervosa tries to get person back to a healthy weight, treat the psychological disorders related to the illness, reduce or eliminate behaviours and thoughts that led to the disordered eating and change how a person think about food and herself or himself.

Diet is the most essential factor to work on in people with anorexia nervosa, and must be tailored to each person's needs. Food variety is important when establishing meal plans as well as foods that are higher in energy density. People must consume adequate calories, starting slowly, and increasing at a measured pace.

Conventional medicine

Psychotherapy

Along with diet, counselling and therapy is crucial for treatment of anorexia. Especially family-based therapy has been shown to be very effective in the treatment of adolescents suffering from anorexia nervosa. For instance, maudsley family therapy, an evidence-based manualized model, showed full recovery at rates up to 90%. Although this model is recommended by the NIHM (National Institute of Mental Health) critics claim that it has the potential to create power struggles in an intimate relationship and may disrupt equal partnerships. Also cognitive behavioural therapy (CBT) is useful in adolescents and adults with anorexia nervosa; acceptance and commitment therapy is a type
of CBT, which has shown promise in the treatment of anorexia nervosa. It is a form of therapy that uses acceptance and mindfulness strategies mixed in different ways with commitment and behavior-change strategies, to increase psychological flexibility.

**Pharmacotherapy**

Pharmaceuticals have limited benefit for anorexia itself.

**Other therapies**

There is not enough research on the alternative medicine as a treatment for people with AS, nevertheless, such a treatment may contribute to a better sense of well-being and reduction of anxiety. Examples of complementary treatment include: meditation, yoga or acupuncture.

**Assisted reproduction**

For patients who do not respond to diet, lifestyle modification, therapies, surgery and/or medication, in vitro fertilisation in combination with ICSI can be performed. This usually includes controlled ovarian hyperstimulation with FSH injections, and oocyte release triggering with human chorionic gonadotropin (hCG) or a GnRH agonist.

IVF-ICSI and other related ART fertilization techniques (IVF-PICSI, MACS etc.) must be used in the case of alteration of sperm values in anorectic men.

**Find more about related issues**

**Diagnoses**

**Anovulation**
Failure of the ovaries to release an oocyte over a period of time generally exceeding 3 months.
Learn more at: [www.fertilitypedia.org/therapy/diag/anovulation](http://www.fertilitypedia.org/therapy/diag/anovulation)
Menstrual cycle disorders
An abnormal condition in a woman's menstrual cycle.
Learn more at: www.fertilitypedia.org/therapy/diag/menstrual-cycle-disorders

Amenorrhoea
The absence of a menstrual period in women of reproductive age.
Learn more at: www.fertilitypedia.org/therapy/diag/amenorrhoea

Oligomenorrhea
Light or infrequent menstrual flow at intervals of 39 days to 6 months or 5–7 cycles in a year.
Learn more at: www.fertilitypedia.org/therapy/diag/oligomenorrhea

Hypoandrogenism
A medical condition characterized by not enough androgenic activity in the body.
Learn more at: www.fertilitypedia.org/therapy/diag/hypoandrogenism

Organs

Hypothalamus
A region of the forebrain that regulates body temperature, some metabolic processes and governs the autonomic nervous system.
Learn more at: www.fertilitypedia.org/edu/organs/hypothalamus

Ovary
The ovum-producing organs of the internal female reproductive system
Learn more at: www.fertilitypedia.org/edu/organs/ovary

Pituitary gland
An endocrine gland, about the size of a pea, whose secretions control the other endocrine glands and influence growth, metabolism, and maturation.
Learn more at: www.fertilitypedia.org/edu/organs/pituitary-gland

Uterus
The uterus is the largest and major organ of the female reproductive tract that is the site of fetal growth and is hormonally responsive
Learn more at: www.fertilitypedia.org/edu/organs/uterus

Reproductive cells
**Endometrial cell**
Cells composing an inner layer of the uterine lining.
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/endometrial-cell](http://www.fertilitypedia.org/edu/reproductive-cells/endometrial-cell)

**Endometrium**
The innermost layer of uterus forming the uterine lumen where the implantation of an oocyte happens.
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/endometrium](http://www.fertilitypedia.org/edu/reproductive-cells/endometrium)

**Oocyte**
A female germ cell involved in reproduction.
Learn more at: [www.fertilitypedia.org/edu/reproductive-cells/oocyte](http://www.fertilitypedia.org/edu/reproductive-cells/oocyte)

**Biological control**

**Estradiol**
A steroid and estrogen sex hormone produced in the ovaries of females.
Learn more at: [www.fertilitypedia.org/edu/biological-control/estradiol](http://www.fertilitypedia.org/edu/biological-control/estradiol)

**Follicle-stimulating hormone**
FSH is a hormone secreted by the anterior pituitary gland. It regulates the development, growth, pubertal matur and reproductive functions of the body
Learn more at: [www.fertilitypedia.org/edu/biological-control/follicle-stimulating-hormone](http://www.fertilitypedia.org/edu/biological-control/follicle-stimulating-hormone)

**Reproductive functions**

**Endometrial receptivity**
Period when the womb is receptive for implantation of the free-lying blastocyst.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/endometrial-receptivity](http://www.fertilitypedia.org/edu/reproductive-functions/endometrial-receptivity)

**Fertilization**
The fusion of an ovum with a sperm to initiate the development of a new individual organism.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/fertilization](http://www.fertilitypedia.org/edu/reproductive-functions/fertilization)

**Fetal development**
The process in which a human embryo or fetus gestates during pregnancy, from fertilization until birth.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/fetal-development](http://www.fertilitypedia.org/edu/reproductive-functions/fetal-development)
**Folliculogenesis**
Development of ovarian follicles from primordial to tertiary under the stimulation of gonadotropins.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/folliculogenesis](http://www.fertilitypedia.org/edu/reproductive-functions/folliculogenesis)

**Implantation**
The very early stage of pregnancy at which the embryo adheres to the wall of the uterus.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/implantation](http://www.fertilitypedia.org/edu/reproductive-functions/implantation)

**Oogenesis**
The process of the maturation of the female gametes through the meiotic division.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/oogenesis](http://www.fertilitypedia.org/edu/reproductive-functions/oogenesis)

**Ovulation**
The release of egg(s) from the ovaries.
Learn more at: [www.fertilitypedia.org/edu/reproductive-functions/ovulation](http://www.fertilitypedia.org/edu/reproductive-functions/ovulation)

⚠️ **Risk factors**

**Bulimia nervosa**
Recurrent instantaneous overeating followed by purging most commonly evoked by self-induced vomiting.
Learn more at: [www.fertilitypedia.org/therapy/rf/bulimia-nervosa](http://www.fertilitypedia.org/therapy/rf/bulimia-nervosa)

**Depression and anxiety disorders**
Disorder characterized by symptoms of both anxiety and depression that may cause sexual disorders and anovulation.
Learn more at: [www.fertilitypedia.org/therapy/rf/depression-and-anxiety-disorders](http://www.fertilitypedia.org/therapy/rf/depression-and-anxiety-disorders)

**Eating disorder**
A mental disorder defined by abnormal eating habits that negatively affect a person's physical or mental health.
Learn more at: [www.fertilitypedia.org/therapy/rf/eating-disorder](http://www.fertilitypedia.org/therapy/rf/eating-disorder)

**Emotional stress**
Learn more at: [www.fertilitypedia.org/therapy/rf/emotional-stress](http://www.fertilitypedia.org/therapy/rf/emotional-stress)
Low level of testosterone
An abnormally low testosterone production which may occur because of testicular or hypothalamic-pituitary dysfunction.
Learn more at: www.fertilitypedia.org/therapy/rf/low-level-of-testosterone

Over-exercise
A common term for any practice of, or training for, a concrete sport which is in excess of that necessary to effectively participate in the sport.
Learn more at: www.fertilitypedia.org/therapy/rf/over-exercise

Poor dietary habits
Eating habits are one of the few factors within our control that impact not only our chances of falling pregnant.
Learn more at: www.fertilitypedia.org/therapy/rf/poor-dietary-habits

Underweight
Underweight is a term describing a person whose body weight is considered too low to be healthy
Learn more at: www.fertilitypedia.org/therapy/rf/underweight

Symptoms

Absence of menstrual periods
The absence of a menstrual period in a woman of reproductive age.
Learn more at: www.fertilitypedia.org/edu/symptoms/absence-of-menstrual-periods-1

Absence of ovulation
An anovulatory cycle is a menstrual cycle during which the ovaries do not release an oocyte.
Learn more at: www.fertilitypedia.org/edu/symptoms/absence-of-ovulation-1

Anxiety
The emotional state characterized by unpleasant feelings such as uneasiness, worry, apprehension and dread.
Learn more at: www.fertilitypedia.org/edu/symptoms/anxiety

Avoidance of sex
A medical condition whose main symptom is low sexual desire.
Learn more at: www.fertilitypedia.org/edu/symptoms/avoidance-of-sex
Cessation of menstruation
The loss of menstrual cycles for at least 6 consecutive months.
Learn more at: www.fertilitypedia.org/edu/symptoms/cessation-of-menstruation

Constipation
A condition where the feces are hardened because of excess water removal in the colon.
Learn more at: www.fertilitypedia.org/edu/symptoms/constipation

Dental caries
A breakdown of teeth due to activities of bacteria.
Learn more at: www.fertilitypedia.org/edu/symptoms/dental-caries

Depression
The emotional state characterized by persistent feel of low self-esteem, loss of interest, sadness and negative attitude.
Learn more at: www.fertilitypedia.org/edu/symptoms/depression

Fatigue
A subjective feeling of tiredness which is distinct from weakness, which has a gradual onset.
Learn more at: www.fertilitypedia.org/edu/symptoms/fatigue

Hair loss
A hair loss that frequently occurs due to an underlying susceptibility of hair follicles to androgenic miniaturisation.
Learn more at: www.fertilitypedia.org/edu/symptoms/hair-loss-1

Immobile or dead spermatozoa in semen
A condition in which spermatozoa in semen are either immobile or dead.
Learn more at: www.fertilitypedia.org/edu/symptoms/immobile-or-dead-spermatozoa-in-semen

Infertility
The failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.
Learn more at: www.fertilitypedia.org/edu/symptoms/infertility

Infrequent menstruation
The medical term for infrequent, often light menstrual periods (intervals exceeding 35 days).
Learn more at: www.fertilitypedia.org/edu/symptoms/infrequent-menstruation-1
Irregular menstruation
Irregular menstruation is a menstrual disorder whose manifestations include irregular cycle lengths as well as metrorrhagia.
Learn more at: www.fertilitypedia.org/edu/symptoms/irregular-menstruation

Irritability
A cognitive effect which results in one experiencing heightened feelings of annoyance, stress, irritability and a tendency towards violent behaviour.
Learn more at: www.fertilitypedia.org/edu/symptoms/irritability

Low concentration of sperm
A condition refers to semen with a low concentration of sperm.
Learn more at: www.fertilitypedia.org/edu/symptoms/low-concentration-of-sperm

Low self-esteem
A feeling of insignificance or a lack of importance.
Learn more at: www.fertilitypedia.org/edu/symptoms/low-self-esteem

Lowered libido
The absence of sexual appetite.
Learn more at: www.fertilitypedia.org/edu/symptoms/lowered-libido

Osteoporosis
A chronic condition characterized by low bone mass and increased risk of fracture.
Learn more at: www.fertilitypedia.org/edu/symptoms/osteoporosis

Reduced sperm motility
The decreased ability of sperm cell to move progressively.
Learn more at: www.fertilitypedia.org/edu/symptoms/reduced-sperm-motility

Small testes
Abnormally small testicular volume.
Learn more at: www.fertilitypedia.org/edu/symptoms/small-testes

Starvation
A severe deficiency in caloric energy intake needed to maintain an organism's life.
Learn more at: www.fertilitypedia.org/edu/symptoms/starvation
Underweight
A term describing a person whose body weight is considered too low to be healthy.
Learn more at: www.fertilitypedia.org/edu/symptoms/underweight

Therapies

Acupuncture
A form of alternative medicine and a key component of traditional Chinese medicine involving thin needles inserted into the body at acupuncture points
Learn more at: www.fertilitypedia.org/edu/therapies/acupuncture

Diet therapy of Anorexia nervosa
A treatment by food, including nutritional restoration and weight normalization.
Learn more at: www.fertilitypedia.org/edu/therapies/diet-therapy-of-anorexia-nervosa-1

Egg donation
Process by which a woman donates eggs for purposes of assisted reproduction or biomedical research.
Learn more at: www.fertilitypedia.org/edu/therapies/egg-donation

Hormone replacement therapy
Learn more at: www.fertilitypedia.org/edu/therapies/hormone-replacement-therapy

ICSI
A micromanipulative fertilization technique in which a single sperm is injected directly into an egg.
Learn more at: www.fertilitypedia.org/edu/therapies/icsi

Medical nutrition therapy
It is a therapeutic approach to treating medical conditions and their associated symptoms via the use of a specifically tailored diet.
Learn more at: www.fertilitypedia.org/edu/therapies/medical-nutrition-therapy

Meditation
A practice where an individual trains the mind or induces a mode of consciousness.
Learn more at: www.fertilitypedia.org/edu/therapies/meditation

Psychotherapy of anorexia nervosa
Learn more at: www.fertilitypedia.org/edu/therapies/psychotherapy-of-anorexia-nervosa
**Sperm donation**
The procedure in which a man (sperm donor) provides his sperm for fertility treatment. Learn more at: [www.fertilitypedia.org/edu/therapies/sperm-donation](http://www.fertilitypedia.org/edu/therapies/sperm-donation)

**Standard IVF**
A process in which an egg is fertilised by sperm outside the body: in vitro. Own or donated gametes may be used. Learn more at: [www.fertilitypedia.org/edu/therapies/standard-ivf](http://www.fertilitypedia.org/edu/therapies/standard-ivf)

**Traditional Chinese medicine**
A broad range of medicine practices sharing common concepts which have been developed in China and are based on a tradition of more than 2000 years. Learn more at: [www.fertilitypedia.org/edu/therapies/traditional-chinese-medicine](http://www.fertilitypedia.org/edu/therapies/traditional-chinese-medicine)

**Yoga**
A physical, mental, and spiritual practice or discipline which originated in India. Learn more at: [www.fertilitypedia.org/edu/therapies/yoga](http://www.fertilitypedia.org/edu/therapies/yoga)

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**Gallery**

**anorexia**
*Two pictures of woman with anorexia nervosa from 1900.*
Sources

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