

Obsessive-Compulsive Disorder

Obsessive-compulsive disorder (OCD) is a type of anxiety disorder in which people suffer from recurrent, unwanted thoughts or ideas (obsessions); engage in repetitive, irrational behaviors or mental acts (compulsions); or both. Among people with OCD, carrying out the compulsive behavior tends to ease feelings of anxiety while repressing the compulsive behavior causes stress.

According to the National Institute of Mental Health, OCD affects about 2.3 percent of the US population ages 18 to 54, which translates into approximately 3.3 million Americans. An additional 1 million children and adolescents have the disorder. The condition typically begins during early childhood or adolescence and affects men and women equally (National Institute of Mental Health 2006).

As many as two-thirds of people who have OCD suffer from additional psychiatric conditions. These conditions, including depression, eating disorders, personality disorder, attention deficit disorder, and other anxiety disorders (e.g., social phobia, separation anxiety disorder), can make it difficult for physicians to diagnose and treat OCD because of overlapping symptoms. Of these additional conditions, major depressive disorder appears to be the most common, affecting up to 55 percent of OCD patients. Bipolar disorder affects as many as 30 percent of OCD patients, while social phobia impacts 23 percent (Cosoff S et al 1998; Kruger S et al 1995).

There are many types of obsessions; the most common ones include repeated thoughts about contamination (by dirt or germs); repeated doubts (worrying about whether one has locked a door or left an appliance on); a need for order or exactness; a fear of harming someone; inappropriate or frightening sexual thoughts or imagery; and constant thoughts of certain images, words, or sounds. In an attempt to relieve the anxiety caused by these thoughts, people with OCD may engage in compulsive behaviors such as excessive showering or hand washing, repeated checking to make sure doors are locked, rearranging objects for order or symmetry, and counting items over and over. Although adults recognize, at least some of the time, that their obsessions and compulsions are unreasonable, children with OCD typically are not capable of this same realization (American Psychiatric Association 2004).

There are no diagnostic tests for OCD. A clinical diagnosis of the disorder requires that the behaviors be extreme enough to interfere with everyday activities (take more than one hour per day) or significantly interfere with a person's relationships, health, or social or occupational functioning. For example, up to 70 percent of people report problems with family relationships, and more than half report interference with social and work relationships (Koran LM 2000; Hollander E et al 1997; Koran LM et al 1996; Calvocoressi L et al 1995). As a result, most OCD victims struggle to rid themselves of their obsessive thoughts and stop their compulsive behaviors.

Diagnostic Criteria for OCD

Taken from the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition

A. Obsessions, as defined by the following:

- recurrent and persistent thoughts, urges or images that an individual perceives as inappropriate and intrusive and that are associated with distress or anxiety
- such thoughts, urges or images are not just excessive worries about actual problems
- individuals make attempts to suppress or ignore these thoughts, urges or images or to neutralize them by engaging in other behaviors or thoughts
- individuals recognize that the persistent thoughts, urges or images are a product of their mind and are not imposed by an outside force

Compulsions, as defined by the following:

- repetitive behaviors (e.g., hand washing, showering, arranging) or mental acts (e.g., counting, repeating words silently) that individuals feel driven to perform in response to an obsession or according to rules they feel compelled to follow rigidly
- such behaviors or mental acts are done to prevent or reduce anxiety or to prevent the occurrence of a dreaded situation or event, even though the behaviors or mental acts are not realistically connected to the things they are designed to neutralize or prevent

B. At some point during the course of the disorder, the individual recognizes that the obsessions or compulsions are excessive or unreasonable. (This criterion does not apply to children.)

C. The obsessions or compulsions cause significant anxiety or distress, consume more than one hour per day, or significantly interfere with people's normal lifestyle, occupational or academic functioning, or typical relationships or social activities.

D. If another disorder is present, the nature of the individual's obsessions or compulsions is not limited to it (e.g., preoccupation with food in eating disorders; hair pulling in trichotillomania; preoccupation with sexual fantasies or impulses in paraphilia; or obsessive guilt in major depressive disorder).

E. The obsessions and/or compulsions are not the direct physiological result of a substance (e.g., medication, a drug of abuse) or a general medical condition.

ORIGINS OF OCD

Although the exact cause of OCD is unknown, a combination of environmental, cognitive, and biological factors appears to be involved. A deficiency of serotonin (a neurotransmitter in the brain that assists with the transmission of electrical messages among nerve cells) has been proposed as at least a partial explanation. Serotonin deficiency has also been implicated in anxiety, depression, and other psychiatric disorders. Various neuroimaging studies also suggest that an electrical dysfunction in certain brain regions may contribute to OCD (Whiteside SP et al 2004). This observation is supported by comparisons of brain activity taken by single photon emission computed tomography and positron emission tomography from healthy controls and people with OCD. Investigators have also suggested that OCD, tic disorders, or both may be caused by an autoimmune response to streptococcal bacteria in some susceptible children (Arnold PD et al 2001).

Genetic factors may also play a role in the development of OCD. People who have a first-degree relative (i.e., parent, sibling) with OCD, for example, have a fivefold greater risk than others of developing the condition themselves (Nestadt G et al 2000). A comprehensive review of studies of twins shows that in children, genetic influences account for 45 to 65 percent of the risk of developing OCD (van Grootheest DS et al 2005). In another study, researchers at the National Institutes of Health's National Institute on Alcohol Abuse and Alcoholism, identified a gene variant that doubles a person's risk of developing OCD (Hu XZ et al 2006).

TREATMENT OF OCD

Because OCD is one of several anxiety disorders believed to be mediated by serotonin transmission, treatment often focuses on boosting levels of serotonin. A high density of serotonin receptors is located in areas of the brain that are involved in the mediation of fear and anxiety (e.g., the hippocampus and amygdala), and stimulation of these receptors is believed to reduce activity in these neurons and thus reduce the fear response. Therefore, treatment of OCD typically involves substances that support availability of serotonin, including pharmaceuticals and nutritional supplements.

Drugs currently used to treat OCD and other anxiety disorders usually fall into one of three categories: selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, and benzodiazepines. The Food and Drug Administration (FDA) has recently ordered that a black box warning appear on the label of all antidepressants, advising consumers that use of these drugs carries an increased risk of suicidal thoughts and behaviors in children and adolescents.

- **SSRIs.** These drugs inhibit the reuptake of serotonin (5-hydroxytryptamine, or 5-HT) into nerve terminals, which allows serotonin to remain available to stimulate a large number of 5-HT receptors. This results in an elevation in mood and a reduction in anxiety symptoms. Clomipramine was the first SSRI approved by the FDA for OCD. Other SSRIs, including fluoxetine, fluvoxamine, paroxetine, and sertraline, have shown similar efficacy.

Although SSRIs tend to cause fewer side effects than older antidepressants (tricyclics, for example), they are not without side effects. Some people experience nausea, diarrhea, agitation, or stomach upset when they begin taking SSRIs, but these symptoms usually dissipate after a few weeks. Approximately 15 to 20 percent of patients who take SSRIs have significant insomnia, and sexual dysfunction (decreased libido, delayed or absent orgasm) is a problem for many individuals as well. Weight gain is a side effect that may occur in some patients.

- **Tricyclic antidepressants.** This class of medication works by inhibiting the reuptake of norepinephrine (a neurotransmitter in the brain) and inhibiting only some of the reuptake of serotonin. Tricyclics that are used in the treatment of OCD include amitriptyline and clomipramine. Milder side effects may include dizziness, drowsiness, dry mouth, and weight gain, while dangerous adverse effects include cardiac arrhythmias and seizures. Tricyclic use is associated with weight gain to a much greater degree than is the use of SSRIs.
- **Benzodiazepines.** This class of medications is used to induce sedative, muscle-relaxant, anticonvulsant, and antianxiety effects. Benzodiazepines have largely been replaced by SSRIs in the treatment of OCD and other anxiety disorders, although they are still used in some cases.

NUTRITIONAL THERAPY

While a balanced, nutrient-rich diet and adequate sleep are standard recommendations for general good health, sleep and diet are especially important for people with OCD. Certain herbs and nutritional supplements act directly on the nervous system, promoting relaxation and feelings of tranquility. Others may relax tense muscles, ease stress-related headaches, soothe gastrointestinal upset, and encourage restful sleep.

Tryptophan. The amino acid tryptophan is a precursor to serotonin. It has been shown that serotonin-promoting tricyclic antidepressants and SSRIs are successful in treating OCD and that tryptophan is effective in the treatment of other anxiety syndromes. Thus, researchers have hypothesized that tryptophan supplementation might reduce OCD symptoms while tryptophan depletion might exacerbate them.

In one study, depletion of tryptophan in patients with OCD resulted in more-significant sleep disturbances (altered rapid eye movement parameters, decreased total sleep time) than experienced by healthy controls (Huwig-Poppe C et al 1999). However, several other studies have shown that depletion of tryptophan has no effect on OCD or Tourette's syndrome symptoms, although some mood-lowering changes were reported (Smeraldi E et al 1996; Barr LC et al 1994). The fact that researchers observed a response in the OCD study that differed from the response observed in depression and panic disorder trials suggests that treatment of OCD may depend less on the availability of serotonin and more on changes that occur further along in the synthesis of serotonin. Another possible explanation is that the tryptophan-depletion study in OCD did not introduce a challenge, as was done in the panic disorder studies and which may have triggered a relapse in symptoms (Bell C et al 2001).

Another dimension to these findings was added by a double-blind, placebo-controlled study at McGill University in Montreal, in which researchers found that acute tryptophan depletion caused patients to experience significantly greater subjective distress when they were provoked with triggering situations (Berney A et al 2006).

Inositol. Inositol is a nutrient that is related to the vitamin B complex and a substance that is necessary for the proper formation of cell membranes. Among inositol's many functions is its ability to affect nerve transmission; aid in the transportation of fats within the body; facilitate the action of various methylating agents; and play an important role in reproduction, embryogenesis, and prevention of neural tube defects such as spina bifida.

In a trial that compared inositol supplementation to placebo, 13 patients with OCD took inositol or placebo for six weeks. Patients experienced a significant reduction in OCD symptoms while they were taking inositol compared with the weeks they were taking placebo (Levine J 1997).

St. John's wort. St. John's wort is an herb with a history of successful treatment of depression and other psychological disorders. Its value in the treatment of OCD may lie in its ability to selectively inhibit reuptake of serotonin, thus, essentially acting as an SSRI (Taylor LH et al 2000). Researchers have also hypothesized that St. John's wort reduces production of cytokines induced by substance P, a neuropeptide known to cause depression and anxiety (Fiebich BL et al 2001).

L-theanine. L-theanine (delta-glutamylethylamide) is found in green tea, which is known to have a calming effect despite the fact that it also contains caffeine. A study demonstrated that L-theanine may be capable of antagonizing the stimulant effects of caffeine on brain activity in a laboratory rat model (Kakuda T et al 2000).

One advantage of theanine is that it readily crosses the blood-brain barrier. Research shows that this ability allows theanine to directly stimulate production of alpha brain waves, which promotes deep relaxation. In one study, for example, researchers found that 50 to 200 mg theanine given to volunteers resulted in the production of alpha waves within 40 minutes of ingesting the amino acid (Juneja LR et al 1999).

HORMONES AND OCD

A number of studies have shown that people with OCD are likely to have abnormal hormone levels and that hormones may play a role in triggering or worsening OCD (Altemus M et al 1999). For instance, several research groups have noticed that women with OCD tend to experience worse symptoms during premenstrual periods, when estrogen levels are highest (Rapkin AJ et al 2002). Estrogen is known to promote anxiety and other feelings that may exacerbate OCD. Among men, at least one case report exists of successful treatment with antiandrogenic therapy that greatly reduced the levels of sex hormones (Eriksson T 2000).

Based on these studies, comprehensive hormone testing and correction may be warranted on an individual basis. Women who are estrogenic, or have elevated levels of estrogen, may consider progesterone therapy to balance the high estrogen levels. Progesterone is known to inhibit anxiety and seizure activities in other diseases and, although it hasn't been tested specifically in OCD, may help reduce symptoms (Herzog AG 1999).

An additional angle of interest involves the pineal hormone melatonin. Melatonin is well known to induce sleep in humans. At least one study has shown that people with OCD tend to have depressed melatonin levels, along with elevated levels of the stress hormone cortisol (Monteleone P et al 1995).

OTHER NONPHARMACEUTICAL APPROACHES

Other treatment approaches, including psychotherapy, exercise, and relaxation methods, can be used in addition to pharmaceutical and nutritional therapies or as treatment options if conventional medications have failed.

Psychotherapy. Some people with OCD have had success with specific types of behavioral therapy. One approach, called exposure and response prevention (ERP), appears to have long-lasting effects and to work best in patients who are highly motivated and have a positive attitude about treatment. ERP involves having patients deliberately confront their feared object or idea and then refrain from acting out, or ritualizing, to obtain relief. Compulsive hand washers, for example, may be asked to touch an object they believe is contaminated and then may be urged to avoid washing for several hours until the anxiety has decreased.

In a study performed at the University of Michigan, 113 patients with OCD took part in group exposure and response prevention therapy for either 7 or 12 weeks. The investigators found that improvements in obsessions, compulsions, and depression were evident in both treatment groups at the end of treatment and at long-term follow-up and that the outcomes did not differ significantly between the two groups (Himle JA et al 2001).

To see how ERP compares to medication (clomipramine) or placebo or when combined with clomipramine, a multisite, randomized, controlled trial was conducted for 12 weeks in 122 adults with OCD. The investigators were interested in response (defined as a decrease in symptoms) or remission (minimal symptoms after treatment). At the end of treatment, there were significantly more responders and remitters in both ERP groups than in the clomipramine-alone or placebo groups. In terms of remission alone, 58 percent achieved it in the ERP-plus-clomipramine group, 52 percent in the ERP-alone group, 25 percent in the clomipramine-only group, and 0 percent in the placebo group (Simpson HB et al 2006).

Not all patients with OCD benefit from or tolerate the ERP approach, however. For them, cognitive interventions may be an option. Cognitive-behavioral therapy for OCD, in which patients attempt to change their beliefs and thinking patterns, has only recently been investigated. A University of British Columbia study compared the efficacy of ERP therapy and cognitive-behavioral therapy in 59 patients with OCD. The patients were randomly assigned to receive one or the other treatment for 12 weeks. At posttreatment and at the three-month follow-up, recovery status in both groups ranged from 58 to 76 percent, but there was no significant difference between the two groups (Whittal ML et al 2005).

Exercise. The healing power of exercise is often touted by health care professionals, and various studies support this recommendation. In a review of three separate meta-analyses, investigators at Arizona State University found that patients who participated in at least 21 minutes daily of aerobic exercise experienced a reduction in anxiety (Petruzzello SJ et al 1991). A more recent study from Canadian researchers at the University of Manitoba in Winnipeg noted that regular exercise may help people who suffer from OCD, phobias, and other psychiatric disorders. When the investigators examined studies of anxiety disorder and exercise dating back to 1981, they found that strength training, running, walking, and other forms of aerobic exercise help relieve mild to moderate depression and may also help treat anxiety and substance abuse (Tkachuk GA et al 1999).

Relaxation techniques. Beginning with the work of Herbert Benson, MD, in the 1970s, evidence has accumulated that relaxation techniques such as meditation and self-hypnosis can reduce stress and anxiety (Benson H et al 1978). One problem with relaxation studies is compliance and the accompanying high drop-out rates. This problem, however, does not negate the fact that meditation and other relaxation techniques, when practiced regularly, can be effective in relieving stress and producing feelings of calm.

Clinical studies and observations of experts from Columbia College of Physicians and Surgeons in New York, for example, show that yogic breathing, meditation, and postures enhance mood, stress tolerance, well-being, and mental focus (Brown RP et al 2005). At the University of California, San Diego, a study found a specific Kundalini yoga protocol to be effective in treating OCD as well as a broad range of anxiety disorders (Shannahoff-Khalsa DS 2004).

LIFE EXTENSION FOUNDATION RECOMMENDATIONS

To address the complex biological, cognitive, and environmental factors that may cause or contribute to OCD, Life Extension recommends a combination of psychotherapy, pharmacotherapy, nutritional supplements, and an exercise program.

1. Treatment with an SSRI or other pharmacotherapeutic agent, as prescribed by a health practitioner.
2. Psychotherapy in combination with an SSRI. Choose a therapeutic approach that is meaningful to you.
3. Exercise a minimum of three times per week for 30 minutes per session. If this is not possible, modify your behavior to increase your level of physical activity. For example, take the stairs instead of an elevator when possible, park far away from

your destination to increase walking distance, or take a walk during a break.

In addition, the following nutrients may help:

- **L-theanine**—200 milligrams (mg) twice daily to decrease the symptoms of OCD
- **Inositol**—4 grams (g) in three divided doses daily
- **Tryptophan**—2 g taken in the evening on an empty stomach
- **St. John's wort**—300 to 900 mg daily
- **Melatonin**—10 mg at night to start

Both men and women may consider comprehensive hormone testing to see whether they are suffering from abnormal hormone levels. If so, bioidentical hormone therapy may be recommended. For more information on bioidentical hormone testing, please see Female Hormone Modulation or Male Hormone Modulation.

PRODUCT AVAILABILITY

All the nutrients and supplements discussed in this section are available through the Life Extension Foundation Buyers Club, Inc. For ordering information, call anytime toll-free 1-800-544-4440, or visit us online at www.LifeExtension.com.

The blood tests discussed in this section are available through Life Extension National Diagnostics, Inc. For ordering information, call anytime toll-free 1-800-208-3444, or visit us online at www.LifeExtension.com.

OBSESSIVE-COMPULSIVE DISORDER SAFETY CAVEATS

An aggressive program of dietary supplementation should not be launched without the supervision of a qualified physician. Several of the nutrients suggested in this protocol may have adverse effects. These include:

L-Tryptophan

- Do not take L-tryptophan if you have carcinoid tumors.
- Do not take L-tryptophan while taking monoamine oxidase inhibitors (MAOIs) (type A) or within 2 weeks of discontinuing MAOIs.
- Do not take L-tryptophan with any antidepressant medications, including selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants or MAOIs.
- Do not take L-tryptophan with serotonin 5-HT receptor agonists, including naratriptan, sumatriptan and zolmitriptan.
- Do not take L-tryptophan if you have ischemic heart disease (e.g., a history of myocardial infarction, angina pectoris or documented silent ischemia), coronary artery spasm (e.g., Prinzmetal angina), uncontrolled hypertension or any other significant cardiovascular disease.
- L-tryptophan can trigger excess serotonin formation in tissues other than the target organ and cause significant adverse reactions.?
- L-tryptophan can cause nausea, diarrhea, loss of appetite, vomiting, difficulty breathing, pupil dilation, abnormally sensitive reflexes, loss of muscle coordination, blurry vision and cardiac dysrhythmia.

Melatonin

- Do not take melatonin if you are depressed.
- Do not take high doses of melatonin if you are trying to conceive. High doses of melatonin have been shown to inhibit ovulation.
- Melatonin can cause morning grogginess, a feeling of having a hangover or a "heavy head," or gastrointestinal symptoms such as nausea and diarrhea.

Saint John's Wort

- St. John's wort can increase sensitivity to sunlight. To avoid a sunburn while taking St. John's wort, minimize your exposure to the sun.
- St. John's wort can cause bloating and constipation.

For more information see the Safety Appendix

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