

## For More Information on Depression

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### National Institute of Neurological Disorders and Stroke (NINDS)

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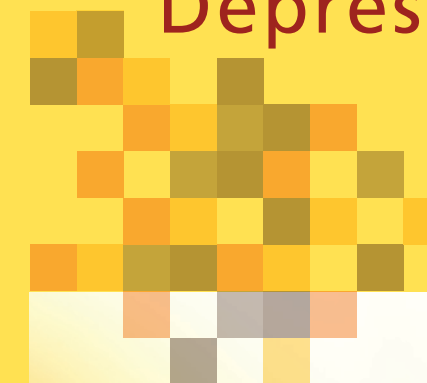
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# Depression and Stroke



**NIMH**  
National Institute  
of Mental Health

**D**epression not only affects your brain and behavior—it affects your entire body.

Depression has been linked with other health problems, including stroke. Dealing with more than one health problem at a time can be difficult, so proper treatment is important.



### What is depression?

Major depressive disorder, or depression, is a serious mental illness. Depression interferes with your daily life and routine and reduces your quality of life. About 6.7 percent of U.S. adults ages 18 and older have depression.<sup>1</sup>

### Signs and Symptoms of Depression

- Ongoing sad, anxious, or empty feelings
- Feeling hopeless
- Feeling guilty, worthless, or helpless
- Feeling irritable or restless
- Loss of interest in activities or hobbies once enjoyable, including sex
- Feeling tired all the time
- Difficulty concentrating, remembering details, or making decisions
- Difficulty falling asleep or staying asleep, a condition called insomnia, or sleeping all the time
- Overeating or loss of appetite
- Thoughts of death and suicide or suicide attempts
- Ongoing aches and pains, headaches, cramps, or digestive problems that do not ease with treatment.

For more information, see the NIMH booklet on Depression at <http://www.nimh.nih.gov/health/publications/depression/index.shtml>.

### What is a stroke?

A stroke occurs when the blood supply to part of the brain is suddenly interrupted, such as when a blood vessel bursts or a clot blocks blood flow. Although strokes occur in and damage the brain, they can affect the whole body. Strokes may cause paralysis (the complete or partial loss of the ability to move), speech problems, or the inability to complete daily tasks. Sometimes these

effects are temporary and sometimes they are permanent. Stroke survivors often need rehabilitation, therapy that helps people relearn skills or learn new skills. Rehabilitation and recovery are unique for each person.

### How are depression and stroke linked?

Many people require mental health treatment after a stroke to address depression, anxiety, frustration, or anger. Several factors may affect the risk and severity of depression after a stroke, including:

- Area of the brain where stroke damage occurred
- Personal or family history of depression or other mood or anxiety disorders
- Level of social isolation before the stroke.<sup>2</sup>

Stroke survivors who are depressed may be less likely to follow treatment plans and may be more irritable or have changes in personality.<sup>3</sup>

Stroke, heart disease, and depression may also be related. Stroke and heart disease share some risk factors, such as high blood pressure and being overweight. One recent study showed that older people with heart disease who had more severe and frequent depression symptoms were more likely to have a stroke.<sup>4</sup>

### How is depression treated in people who have had a stroke?

Depression is diagnosed and treated by a health care provider. Treating depression and other mental disorders may help with stroke recovery.<sup>5</sup> After a stroke, treatment with antidepressant medications or problem-solving therapy (a type of psychotherapy, or talk therapy) may prevent serious depression before it begins.<sup>5</sup> Problem-solving therapy helps people identify problems that interfere with daily life and contribute to depressive symptoms and find ways to solve those problems.

Recovery from depression takes time but treatments are effective. At present, the most common treatments for depression include:

- Cognitive behavioral therapy (CBT), a type of psychotherapy, or talk therapy, that helps people change negative thinking styles and behaviors that may contribute to their depression
- Selective serotonin reuptake inhibitor (SSRI), a type of antidepressant medication that includes citalopram (Celexa), sertraline (Zoloft), and fluoxetine (Prozac)
- Serotonin and norepinephrine reuptake inhibitor (SNRI), a type of antidepressant medication similar to SSRI that includes venlafaxine (Effexor) and duloxetine (Cymbalta).

While currently available depression treatments are generally well tolerated and safe, talk with your health care provider about side effects, possible drug interactions, and other treatment options. For the latest information on medications, visit the U.S. Food and Drug Administration website at <http://www.fda.gov>. Not everyone responds to treatment the same way. Medications can take several weeks to work, may need to be combined with ongoing talk therapy, or may need to be changed or adjusted to minimize side effects and achieve the best results.

More information about depression treatments can be found on the NIMH website at <http://www.nimh.nih.gov/health/publications/depression/how-is-depression-detected-and-treated.shtml>. If you think you are depressed or know someone who is, don't lose hope. Seek help for depression.

### What is vascular depression?

Vascular depression is a late-life form of depression that usually only affects people ages 60 or older. Blood vessels may harden over time, reducing or blocking normal blood flow to the brain. This reduced or blocked blood flow can lead to vascular depression. People with vascular depression may also be at risk for heart disease or stroke.<sup>6</sup>

Although there are no highly effective treatments for vascular depression, scientists are making progress in understanding and treating this condition. Researchers are studying the specific brain changes linked to blood vessel problems. In older people with depression, higher blood pressure is linked with abnormal changes in white matter, the tracts of nerve fibers that connect and allow communication between different parts of the brain.<sup>7</sup> Some of these abnormal changes were linked with specific problems in the frontal lobe, an area of the brain involved in thought processes such as planning, problem solving, and judgment. These abnormal changes may also affect a person's response to treatment with antidepressant medications.

One recent study showed that vascular depression can be effectively treated with repetitive transcranial magnetic stimulation (rTMS).<sup>8</sup> The U.S. Food and Drug Administration has approved rTMS to treat major depression. Study participants had not responded to standard depression treatments. After 2 weeks, those who received rTMS were more likely to have achieved remission (no longer had any symptoms of depression) compared with those who did not receive rTMS. Further studies aim to find the lowest possible dose of rTMS that can be used to most effectively treat people with vascular depression.