

# Depression

## Making a Difference Today

Depression is one of the most common and costly brain diseases, afflicting 18.8 million adults in the United States each year—that's 10 percent of the country's population over the age of 18. The disease exacts an enormous toll on individuals, families, and workplaces. Depressed people feel intensely sad and worthless and have a diminished sense of emotional well-being. They are at increased risk for substance abuse, suicide, eating disorders, and illnesses like heart disease and stroke.

Depression is also a drain on the economy. It costs \$44 billion in lost productivity in the United States every year. The National Institute of Mental Health now lists depression as the country's leading cause of disability. Fortunately, research funded by the National Institutes of Health (NIH) has led to treatments that help depressed people cope better in their daily lives.

### Medication Breakthroughs

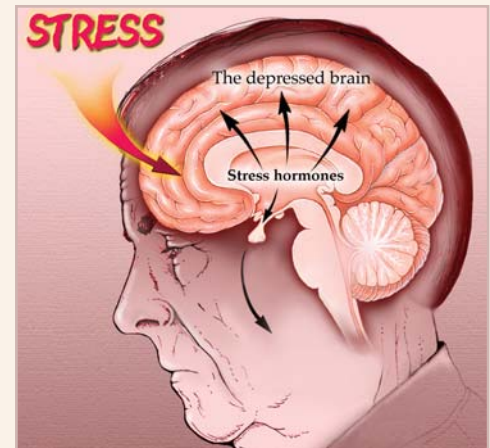
Antidepressant medications, first discovered half a century ago, have helped depressed people regain some joie de vivre. The drugs most commonly used today target the brain chemical norepinephrine and the circuits that use the brain chemical serotonin. During the past decade, research funded by NIH has led to a new generation of these antidepressants—selective serotonin reuptake inhibitors (SSRIs)—that produce fewer serious side effects. But, like earlier drugs for depression, SSRIs can take several weeks to be effective and fail to work at all in about 30 percent of cases. In addition, more research is needed on their use in children because of reported SSRI side effects.

Scientists are now discovering potentially powerful strategies for entirely new classes of antidepressants. With continued NIH funding, scientists will uncover how these new drugs, sometimes in combination with psychotherapy, can dramatically improve the depressed brain's functioning.

### Stress and Depression

One of the most promising of the new strategies is to target the body's hormone system for regulating stress. Research funded by NIH has shown that this system is overactive in some depressed people, keeping stress chemicals in the bloodstream and harming the brain.

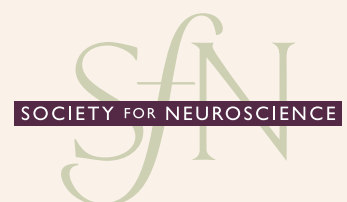
With the aid of NIH funding, scientists are now trying to identify new drugs that can rebalance the stress system and protect or repair the brain. These drugs will provide relief from the incapacitating and often life-threatening effects of depression.



Treatments under investigation by NIH may help prevent or even reverse the disruption of the stress system that can lead to depression. Under repeated stress, an individual's stress hormones are constantly activated, keeping the person on guard. Such malfunctioning in the stress hormone system can result in chronic depression.

### Continued funding for research could lead to:

- Safer and more effective antidepressants and other treatments for depression.
- A better understanding of how environmental factors like childhood trauma play a role in the development of depression throughout life.
- New ways to image the brain that could diagnose depression earlier.
- The identification of gene variants that cause people to be vulnerable to depression and other mental disorders.



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## Making a Difference Tomorrow

Despite much progress in understanding the biology and chemistry of depression in the past decade, much remains to be done. Depression continues to devastate individuals and their families, and even to kill. Did you know that:

- Depression affects about 10 percent of Americans over the age of 18 each year.
- Up to 2.5 percent of children and 8 percent of adolescents in the United States are depressed.
- Depression now begins earlier in life than was the case in past decades.
- Women experience depression at nearly twice the rate of men, but during childhood, boys and girls suffer equally.

Investigations into brain stimulation, brain imaging, and genetics promise to yield better treatments for depression.

### Research Brings Hope for the Future

With modern advances, electroconvulsive therapy (ECT) has become a highly effective antidepressant treatment. In addition to investigating more precise ways of delivering ECT, researchers are exploring other types of brain stimulation techniques for the treatment of depression, such as transcranial magnetic stimulation, deep brain stimulation, and vagus nerve stimulation.

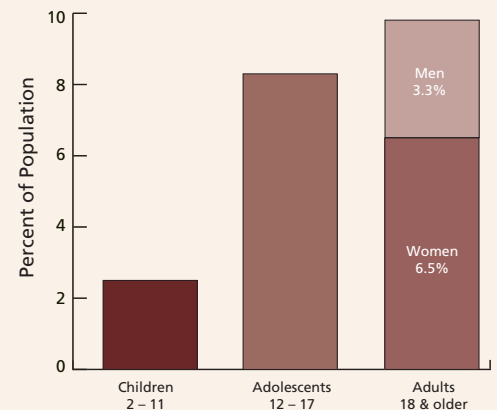
Taking images of the brain in living people is providing a clearer understanding of how the regulation of critical brain chemicals becomes impaired in depression. Such research may enable scientists to “map” depression and perhaps discover biological markers that would lead to more individualized—and thus more effective—treatments.

And with further NIH funding, researchers will continue their development of a large database that will help pinpoint genes that make people susceptible to depression.

### Hope for Other Diseases

As scientists hunt for new treatments for depression, they are finding that this illness shares some common traits with many other diseases and conditions, including Parkinson’s disease, Alzheimer’s disease, Cushing syndrome, chronic pain, and epilepsy. NIH research has also revealed that depressed people often have anxiety disorders, such as post-traumatic stress disorder and obsessive-compulsive disorder, and physical illnesses, such as heart disease, stroke, cancer, and diabetes. Only with continued funding will scientists be able to bring about the medical advances needed to prevent depression from ravaging the lives of millions of Americans.

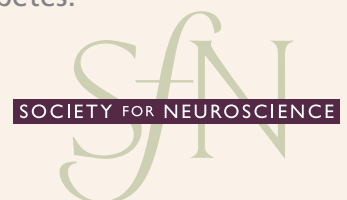
Prevalence of Depression by Age



Depression strikes people of all ages. The average age of onset for a major depressive disorder is now in the mid-20s. This is a major change from past generations, when depression was most likely to strike during a person’s 40s or 50s.

### Already research has led to:

- A new generation of antidepressants—selective serotonin reuptake inhibitors (SSRIs)—that produce fewer side effects than their predecessors.
- Recognition of the crucial role that stress plays in depression.
- A better understanding of how psychotherapy, often in combination with antidepressants, helps change the chemistry of the depressed brain.
- Recognition of the link between depression and such physical illnesses as heart disease, stroke, cancer, and diabetes.



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