

# Depression and Diabetes

Depression can strike anyone, but people with diabetes, a serious disorder that afflicts 16 million Americans, may be at greater risk. In addition, individuals with depression may be at greater risk for developing diabetes. Treatment for depression helps people manage symptoms of both diseases, thus improving the quality of their lives.

Several studies suggest that diabetes doubles the risk of depression compared to those without the disorder.<sup>1</sup> The chances of becoming depressed increase as diabetes complications worsen. Research shows that depression leads to poorer physical and mental functioning, so a person is less likely to follow a required diet or medication plan. Treating depression with psychotherapy, medication, or a combination of these treatments can improve a patient's well-being and ability to manage diabetes.

Causes underlying the association between depression and diabetes are unclear. Depression may develop because of stress but also may result from the metabolic effects of diabetes on the brain. Studies suggest that people with diabetes who have a history of depression are more likely to develop diabetic complications than

those without depression. People who suffer from both diabetes and depression tend to have higher health care costs in primary care.<sup>2</sup>

Despite the enormous advances in brain research in the past 20 years, depression often goes undiagnosed and untreated. People with diabetes, their families and friends, and even their physicians may not distinguish the symptoms of depression. However, skilled health professionals will recognize these symptoms and inquire about their duration and severity, diagnose the disorder, and suggest appropriate treatment.

## Depression Facts

Depression is a serious medical condition that affects thoughts, feelings, and the ability to function in everyday life. Depression can occur at any age. NIMH-sponsored studies estimate that 6 percent of 9- to 17-year olds in the U.S. and almost 10 percent of American adults, or about 19 million people age 18 and older, experience some form of depression every year. Although available therapies alleviate symptoms in over 80 percent of those treated, nearly two-thirds of people with depression do not get the help they need.

Depression results from abnormal functioning of the brain. The causes of depression are currently a matter of



## Depression Symptoms

- Persistent sad, anxious, or "empty" mood
- Feelings of hopelessness, pessimism
- Feelings of guilt, worthlessness, helplessness
- Loss of interest or pleasure in hobbies and activities that were once enjoyed, including sex
- Decreased energy, fatigue, being "slowed down"
- Difficulty concentrating, remembering, making decisions
- Insomnia, early-morning awakening, or oversleeping
- Appetite and/or weight loss or overeating and weight gain
- Thoughts of death or suicide; suicide attempts
- Restlessness, irritability

If five or more of these symptoms are present every day for at least two weeks and interfere with routine daily activities such as work, self-care, and childcare or social life, seek an evaluation for depression.

intense research. An interaction between genetic predisposition and life history appear to determine a person's level of risk. Episodes of depression may then be triggered by stress, difficult life events, side effects of medications, or other environmental factors. Whatever its origins, depression can limit the energy needed to keep focused on treatment for other disorders, such as diabetes.

## Diabetes Facts

Diabetes is a disorder that impairs the way the body uses digested food for growth and energy. Most of the food we eat is broken down into glucose, a form of sugar that provides the main source of fuel for the body. After digestion, glucose passes into the bloodstream. Insulin, a hormone produced by the pancreas, helps glucose get into cells and converts glucose to energy. Without insulin, glucose builds up in the blood, and the body loses its main source of fuel.

In **type 1 diabetes**, the immune system destroys the insulin-producing beta cells of the pancreas. This form of diabetes usually strikes children and young adults, who require daily or more frequent insulin injections or using an insulin pump for the rest of their lives. Insulin treatment, however, is not a cure, nor can it reliably prevent the long-term complications of the disease. Although scientists do not know what causes the immune system to attack the

cells, they believe that both genetic and environmental factors are involved.

Type 1 diabetes accounts for about 5 to 10 percent of diagnosed diabetes in the United States, occurs equally in males and females, and is more common in Caucasians. Symptoms include increased thirst and urination, constant hunger, weight loss, blurred vision, and extreme fatigue. If not treated with insulin, a person can lapse into a life-threatening coma.

**Type 2 diabetes**, which accounts for about 90 percent of diabetes cases in the United States, is most common in adults over age 40. Affecting about 6 percent of the U.S. population, this form of diabetes is strongly linked with obesity (more than 80 percent of people with type 2 diabetes are overweight), inactivity, and a family history of diabetes. It is more common in African Americans, Hispanic Americans, American Indians, and Asian and Pacific Islander Americans. With the aging of Americans and the alarming increase in obesity in all ages and ethnic groups, the incidence of type 2 diabetes has also been rising nationwide.

Type 2 diabetes is often part of a metabolic syndrome that includes obesity, high blood pressure, and high levels of blood lipids. People with type 2 diabetes first develop insulin resistance, a disorder in which muscle, fat, and liver cells do not use insulin properly. At first, the pancreas produces more insulin, but gradually its capacity to secrete insulin falters, and

the timing of insulin secretion becomes abnormal. After diabetes develops, insulin production continues to decline.

Symptoms include fatigue, nausea, frequent urination or infections, unusual thirst, weight loss, blurred vision, and slow healing of wounds or sores. Some people have no symptoms at all. Researchers estimate that about one-third of people with type 2 diabetes don't know they have it.

Many people with type 2 diabetes can control their blood glucose by following a careful diet and exercise program, losing excess weight, and taking oral medication. However, the longer a person has type 2 diabetes, the more likely he or she will need insulin injections, either alone or together with oral drugs.

**Gestational diabetes** develops during pregnancy. Like type 2 diabetes, it occurs more often in African Americans, American Indians, Hispanic Americans, and people with a family history of diabetes. Though it usually disappears after delivery, the mother is at increased risk of getting type 2 diabetes later in life.

## Managing Diabetes

Research has shown that tight glucose control is the best way to prevent serious complications of diabetes, so the goal of diabetes

management is to keep blood glucose levels as close to the normal range as possible. Healthy eating, physical activity, insulin injections, or using an insulin pump are basic therapies for type 1 diabetes. Blood glucose levels must be monitored through frequent checking. In recent years, research has led to better ways to manage type 2 diabetes and treat its complications with improved monitoring of blood glucose, new drugs, and weight control management. Blood pressure drugs called ACE (angiotensin-converting enzyme) inhibitors help to prevent or delay heart and kidney disease.

People with diabetes try to keep blood glucose (also called blood sugar) from rising too high or falling too low. When blood glucose levels drop too low from some medicines—a condition called *hypoglycemia*—a person can become nervous, shaky, and confused. Judgment can be impaired, and if the level is low enough, a person can faint. High levels of blood glucose, called *hyperglycemia*, cause tissue damage and lead to debilitating complications. Associated with acute and long-term complications, the disease can lead to blindness, heart and blood vessel disease, strokes, kidney failure, amputations, and nerve damage. Uncontrolled diabetes can complicate pregnancy. Because a large part of the population is aging and Americans are increasingly

overweight and sedentary, the prevalence of diabetes is predicted to increase.

Researchers continue to search for the causes of diabetes and ways to prevent and cure the disorder. Scientists are looking for genes that contribute to the different forms of diabetes, are testing new drugs, and are using bioengineering techniques to try to create artificial beta cells that secrete insulin.

## Get Treatment

While there are many different treatments for depression, they must be carefully chosen by a trained professional based on the circumstances of the person and family. Prescription antidepressant medications are generally well-tolerated and safe for people with diabetes. Specific types of psychotherapy, or “talk” therapy, also can relieve depression. However, recovery from depression takes time. Antidepressant medications can take several weeks to work and may need to be combined with ongoing psychotherapy. Not everyone responds to treatment in the same way. Prescriptions and dosing may need to be adjusted.

In people who have diabetes and depression, scientists report that psychotherapy and antidepressant medications have positive effects on both mood and glycemic control. Additional trials will help us better understand the links between depression and diabetes and the behavioral and physiologic mechanisms by which improvement in depression

fosters better adherence to diabetes treatment and healthier lives.

Treatment for depression in the context of diabetes should be managed by a mental health professional—for example, a psychiatrist, psychologist, or clinical social worker—who is in close communication with the physician providing the diabetes care. This is especially important when antidepressant medication is needed or prescribed, so that potentially harmful drug interactions can be avoided. In some cases, a mental health professional that specializes in treating individuals with depression and co-occurring physical illnesses such as diabetes may be available. People with diabetes who develop depression, as well as people in treatment for depression who subsequently develop diabetes, should make sure to tell any physician they visit about the full range of medications they are taking.

Use of herbal supplements of any kind should be discussed with a physician before they are tried. Recently, scientists have discovered that St. John's wort, an herbal remedy sold over-the-counter and promoted as a treatment for mild depression, can have harmful interactions with some other medications. (See the alert on the NIMH web site: <http://www.nimh.nih.gov/events/stjohnwort.cfm>.)

Other mental disorders, such as bipolar disorder (manic-depressive illness) and anxiety disorders, may occur in people with diabetes, and they too can be effectively treated. For more information about these and other mental illnesses, contact NIMH.

Remember, depression is a treatable disorder of the brain. Depression can be treated in addition to whatever other illnesses a person might have, including diabetes. If you think you may be depressed or know someone who is, don't lose hope. Seek help for depression.

For more information about depression and research on mental disorders, contact:

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## References

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<sup>2</sup>Ciechanowski PS, Katon WJ, Russo JE. Depression and diabetes: impact of depressive symptoms on adherence, function, and costs. *Archives of Internal Medicine*, 2000; 160(21): 3278-85.

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