

Name _____

Directions: Read the following article to yourself and circle any words that you do not understand.

Lou Gehrig's Disease (ALS)

(1) What Is Lou Gehrig's Disease?

Lou Gehrig's disease is a disorder that's also called **amyotrophic lateral sclerosis** (say: ah-my-uh-TRO-fik LA-tuh-rul skluh-RO-sis), or ALS. The official name comes from these Greek words:

- "a" for without
- "myo" for muscle
- "trophic" for nourishment
- "lateral" for side (of the spinal cord)
- "sclerosis" for hardening or scarring

So, amyotrophic means that the muscles have lost their nourishment. When this happens, they become smaller and weaker. Lateral means that the disease affects the sides of the spinal cord, where the nerves that nourish the muscles are located; and sclerosis means that the diseased part of the spinal cord develops hardened or scarred tissue in place of healthy nerves.

ALS is often called Lou Gehrig's disease after Lou Gehrig, a hall-of-fame baseball player for the New York Yankees who was diagnosed with ALS in the 1930s.

(2) Lou Gehrig's disease damages motor neurons in the brain and spinal cord. Motor neurons are nerve cells that control muscle movement. Upper motor neurons send messages from the brain to the spinal cord, and lower motor neurons send messages from the spinal cord to the muscles. Motor neurons are an important part of the body's neuromuscular system.

(3) The neuromuscular system enables our bodies to move and is made up of the brain, many nerves, and muscles. Things that we do every day — like breathing, walking, running, lifting stuff, and even reaching for a glass of water — are all controlled by the neuromuscular system. Here's how the neuromuscular system works: If you want to make a fist, your brain first sends signals through upper motor neurons to the area in your spinal cord that controls your hand muscles. Then lower motor neurons in your spinal cord signal the muscles in your hand to move and make a fist.

(4) Over time, Lou Gehrig's disease causes these motor neurons in the brain and spinal cord to shrink and disappear, so that the muscles no longer receive signals to move. As a result, the muscles become smaller and weaker. Gradually the body becomes paralyzed, which means that the muscles no longer work.

(5) However, someone with ALS, even at an advanced stage, can still see, hear, smell, and feel touch. The nerves that carry feelings of hot, cold, pain, pressure, or even being tickled, are not affected by Lou Gehrig's disease. In some people with ALS, the parts of the brain that allow us to think, remember, and learn also are affected by the disease.

(6) How Is the Disease Diagnosed?

Lou Gehrig's disease doesn't always begin or become worse in the same way. The disease is different for every person who has it. In general, muscle weakness, especially in the arms and legs, is an early symptom for more than half of people with ALS. Other early signs are tripping or falling a lot, dropping things, having difficulty speaking, and cramping or twitching of the muscles. As the disease gets worse over time, eating, swallowing, and even breathing may become difficult. It may take several months to know for sure that someone has Lou Gehrig's disease. A doctor will examine the patient and do special tests to see if it might be Lou Gehrig's disease.

(7) How Is the Disease Treated?

Currently, there's no way to prevent or cure Lou Gehrig's disease, but a number of treatments are available to people with the disease. Medicines can control symptoms, such as muscle cramping and difficulty swallowing, and other drugs can slow the development of the disease. Physical therapy can help people with ALS cope with muscle loss and breathing problems. Special equipment is also provided when it becomes necessary. For instance, a power wheelchair can enable a paralyzed person with ALS to get around. A machine called a ventilator (say: VEN-ti-lay-ter) can help someone breathe. In addition, a nurse or other health assistant may come to the person's home to provide care that the family cannot handle alone. It's normal for family members to feel upset, overwhelmed, and sad if a loved one has ALS.

(8) Living With Lou Gehrig's Disease

According to the ALS Association, about half of all people with ALS live at least 3 years after they find out they have the disease, and 20% (or 1 in 5) live 5 years or more. As many as 10% will survive more than 10 years.

(9) Stephen Hawking has been living with Lou Gehrig's disease for about 50 years — ever since his diagnosis at age 21. He is the most famous long-term survivor of the disease. Born in England, Hawking is a famous physicist who furthered our understanding of the universe. He has written a lot of books, including the bestseller *A Brief History of Time*. He has done these things despite being confined to a wheelchair for many years, being able to move only a few fingers, and needing a voice synthesizer and special computer to speak and write. Professor Hawking said, "[ALS] has not prevented me from having a very attractive family, and being successful in my work . . . I have been lucky that my condition has progressed more slowly than is often the case. But it shows that one need not lose hope."

Reviewed by: Steven Dowshen, MD

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First Read- First Impressions (what are your thoughts about ALS?):

Second Read- Find the Evidence (answer the questions, tell me which paragraph helped you come up with your answer for questions 1-4):

1. What does Lou Gehrig's disease damage in the body?
2. What are some things that, even with advanced ALS, a person can still do?
3. Can a person with ALS lead somewhat of a normal life? Why or why not?
4. Roughly how long do about half of all people have to live after diagnosis?

Third Read- Central Idea (answer the following question):

Stephen Hawking says, "...that one need not lose hope" about living with ALS. What would you do if you were given a short time to live? Would you, "not lose hope," as Hawking says, or would you react differently? Explain.