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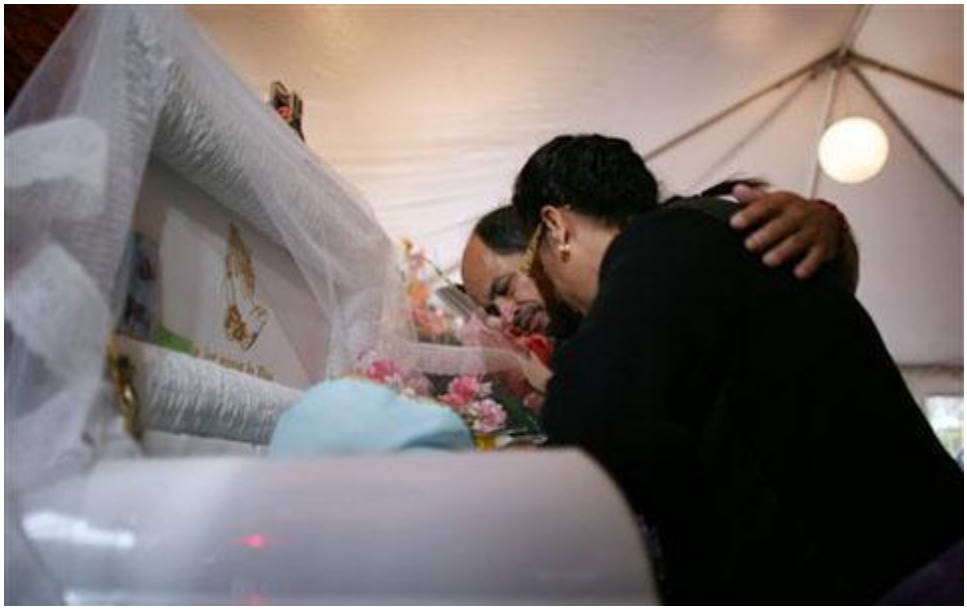
A Death in the Family May Cause Real Heart Break



AP
A recent study shows that the risk of heart attack increases after the death of a loved one

SHIRLEY GRIFFITH: This is SCIENCE IN THE NEWS, in VOA Special English. I'm Shirley Griffith.

MARIO RITTER: And I'm Mario Ritter. Today, we tell about an American study of heart attack survivors. We tell about a scientist recognized for his work in plate tectonics. And we tell how modern-day musicians rated some of the most famous instruments ever made.

(MUSIC)

SHIRLEY GRIFFITH: Learning about the death of a loved one can be among life's most stressful events. A recent study showed that the risk of heart attack increases in the days and hours after getting news of such a death. Researchers studied nearly two thousand heart attack survivors. The subjects were asked whether someone close to them had died in the six months before their heart attack.

Elizabeth Mostofsky is with Beth Israel Deaconess Medical Center in Boston, Massachusetts.

ELIZABETH MOSTOFSKY: "We found that the risk of having a heart attack was twenty-one times higher in the day following the loss of a loved one, compared to other times. And that risk remained elevated in the subsequent days and weeks."

MARIO RITTER: Elizabeth Mostofsky says earlier research explored the risk of dying from any cause over a year or more after the death of a husband, wife or

child. The earlier research did not include the death of other close family members or friends.

Ms. Mostofsky and her team studied information from the days immediately after receiving the news. She says several things could explain why the intense feelings after the death of a loved one could lead to a heart attack.

ELIZABETH MOSTOFSKY: "Grief causes feeling of depression, anger, and anxiety, and several studies have shown that these emotions can cause increased heart rate, higher blood pressure, and blood clotting. And those in turn, can increase the chances of having a heart attack."

SHIRLEY GRIFFITH: Ms. Mostofsky says the family and friends of those mourning for a loved one should know about the increased risk of heart attack.

ELIZABETH MOSTOFSKY: "People should be making sure that the bereaved person is taking care of himself or herself, including taking regular medications, because they are at that heightened level of vulnerability at this time in their life."

Her research paper was published in Circulation, the journal of the American Heart Association.

(MUSIC)

MARIO RITTER: A few weeks ago, we talked about the science of plate tectonics. Plate tectonics explains why the Earth's surface moves. It also tells how those changes cause earthquakes and volcanic activity. Today, we tell about a scientist who helped prove the theory of continental drift. Walter C. Pitman, the third, is an adjunct professor of geophysics at Columbia University. Now in his eighties, he works at Columbia's Lamont-Doherty Earth Observatory in Palisades, New York.

SHIRLEY GRIFFITH: When Walter Pitman was a teenager, he enjoyed visiting his father's workplace at Bell Labs research center. He remembers asking the researchers about their work.

WALTER PITMAN: "I worked there in the summertime sweeping floors but I was in amongst all these people. It was wonderful."

Lamont-Doherty Earth Observatory

Walter Pitman studied electrical engineering and physics in college. He then went to work for an electronics company. He was not excited about the work, until one project – doing research on submarines – fueled a love for oceanography.

Mister Pitman returned to school. For his doctoral studies, he went back to sea on a research vessel. He hoped to gather evidence that all the continents had once been joined. He thought they had been moving apart on large plates for hundreds of millions of years.

MARIO RITTER: Walter Pitman helped prove the idea that Earth's continents move. He did this by recording and studying magnetic patterns at the bottom of the ocean.

WALTER PITMAN: "It was electrifying. I didn't imagine ever being involved in anything so astonishing and so very, very important to the geologic sciences at such a young age in my career. I was very fortunate to be there when it all happened."

The science of plate tectonics explains how the continents move around the oceans. It also explains how continents can strike each other and break apart, creating earthquakes and mountain chains.

SHIRLEY GRIFFITH: Later, Mr. Pitman turned his attention to the surface of the ocean, and sea level changes. He and William Ryan, another Columbia University geophysicist, proposed what is known as the Black Sea Deluge Theory. They suggested that the Black Sea was once a landlocked freshwater lake. Then about seven thousand five hundred years ago, melting ice from glaciers raised water levels in the Mediterranean Sea.

WALTER PITMAN: "You're talking about a huge mass of water coming in to fill a very small basin. And that water as it would come through the Bosporus is going to cut the Bosporus deeper. The deeper it cuts, the faster it flows. The faster it flows, the faster it cuts. There is a feedback mechanism. So soon you start with a trickle and within a very short period of time, it's a roaring, raging flume of water and we're very sure that's what it [the biblical flood] was, you know."

MARIO RITTER: Mr. Pitman and other researchers are currently studying the climate of the Arctic Ocean. And they are exploring its effects on water cycles

over the past two million years. Their research could help scientists predict the effects of climate change, which is causing sea levels to rise.

WALTER PITMAN: "I've had an incredible, incredibly good time at this kind of endeavor. There are bad spots, of course there are bad spots. But the science is always fascinating. You might, you know, stop reading for the day or something like that and say, 'Wow, that was so great. I learned something about how the Earth works.' That is really pure pleasure."

(MUSIC)

SHIRLEY GRIFFITH: This is the sound of the greatest violin ever made.

Or maybe it is this one.

It could be a Stradivarius, or an Amati, or a Guarneri made hundreds of years ago. But it might also have been made just last year by someone whose name is not nearly so famous. And that leads us to ask the following. Can you tell, just by listening, which is the best violin? If so, what makes it great?

MARIO RITTER: It all began over three hundred years ago in the town of Cremona in northern Italy. If you wanted to buy a really good musical instrument, you probably visited Antonio Stradivari, Girolamo Amati, or Andrea Guarneri. Many people said they made the best violins that money could buy. Today, many still think of those violins as the greatest of all time. Those that still exist can sell for millions of dollars.

For years, scientists and musicians have sought to discover the secrets of the master violin makers. They know that most of the time, spruce, willow or maple wood was used. Some people have thought that chemicals like borax were added to the wooden parts. Others have said that honey, or even the white of an egg was painted on the parts before they were put together.

SHIRLEY GRIFFITH: Still other researchers say that a special kind of glue was used to connect the parts. Some think the secret is in the varnish, the nearly clear liquid that was used as a final cover to protect the wood. Or maybe the wood was special because it grew at a time when the weather was colder than it is today. In the end, no one knows for sure.

And some people say we should not spend a lot of time thinking about the materials and processes used long ago. They instead think that some modern violins sound just as good and cost a lot less. Claudia Fritz at the University of Paris is one of those people. She led a study that was published in the Proceedings of the National Academy of Sciences.

At a musical competition in Indiana, she asked twenty-one really good violin players to test six different instruments. She did not tell them that only three of the violins were very old and costly. Together, the three were worth about ten million dollars. The other three were made by modern luthiers, or instrument makers, and cost a hundred times less.

MARIO RITTER: Ms. Fritz asked each of the players to wear welders' goggles, thick, dark eyeglasses, so they could not see the instruments very well while holding them. She thought that some people might be able to identify an old violin by its smell. So she put a little sweet-smelling perfume on the part of the instrument that fits under a player's chin.

The test began in a hotel room. All the subjects in the experiment were permitted to play all six violins, and then say which one they would like to own. Then each player was given only two violins to test. One was very old. The other was modern. They were asked which of the two sounded better. The results of the test led Ms. Fritz to believe that there is no secret to how the old, great violins were made.

SHIRLEY GRIFFITH: Of the twenty-one players, only eight chose an old violin as the best. Even a recently made violin was judged to be much better sounding than the world famous Stradivarius. Ms. Fritz says the difference between the old and new instruments is only in the mind of the player. Modern luthiers were happy that she found what they believed.

But some professional musicians think the test had little value. One noted that violins are meant to be heard in a concert hall, not a hotel room.

MARIO RITTER: Researchers have performed tests like this many times in the past. But Ms. Fritz says those tests asked average listeners to try to predict which violin was made by a master. Her test was given to concert violinists who play at the highest level. They are the ones you would expect to have the best "ear" for great sound.

There is an old saying that, "beauty lies in the eye of the beholder." If that is true, then perhaps your opinion of how an instrument sounds to your ear is really what matters.

SHIRLEY GRIFFITH: This SCIENCE IN THE NEWS was written by Brianna Blake and Jim Tedder. June Simms was our producer. I'm Shirley Griffith.

MARIO RITTER: And I'm Mario Ritter. Listen again next week for more news about science in Special English on the Voice of America.