The Science of Stress: How Well Do You Test?


Positive thinking and preparation can help those who get worried during test to overcome their anxiety.

To figure out why some students perform well under pressure and others don’t, a team of scientists in Taiwan took blood samples of 779 Taiwanese students who had just taken an extremely difficult and important test. They compared each student’s genes to his or her test score and discovered the COMT gene has two variants – one that works quickly, and one that works slowly.

When you’re stressed, your brain is flooded with dopamine, a chemical that affects how your brain works. The COMT gene’s job is to clear that dopamine from the prefrontal cortex, the part of the brain responsible for cognitive ability, problem-solving, reasoning, and planning. Too much dopamine and students have a hard time concentrating and recalling facts.
Are you a "warrior" or "worrier"?

In a test setting, students with the fast-acting COMT gene performed better because the overwhelming surge of dopamine was quickly reduced, allowing them to concentrate.

However, many students with the slow-acting COMT gene had better grades in a classroom setting, where the COMT gene cleared stress at a more gradual rate – giving them a slight, steady anxiety that motivates them to complete daily tasks and homework. Scientists call these two different groups the “warriors” and the “worriers”.

The Taiwanese study proved what many of us already know – that pressure helps some people to perform well, while it can hurt others who may be diligent with work and long-term planning but are overwhelmed by the anxiety of testing and high-stakes competition.

Using stress as a motivator

Everyone gets two COMT genes – one from their father, and one from their mother. Fifty percent of people have one of each gene, so attitude and experience can have a greater influence on their ability to handle pressure.

Additional research shows that even people with 100% “worrier” genes can use positive thinking and training in a stressful context to overcome their anxiety. “Worriers” should think of their stress as a motivator.

Researchers had students read a statement that said, “people who feel anxious during a test might actually do better,” and those students scored higher on tests. Even if a “worrier” can’t overcome the pre-test jitters, he or she should celebrate getting through it, reported the New York Times.

Activities like spelling bees, science fairs, class math competitions, and sports can also help kids associate a feeling of nervousness with having fun with competition and accomplishing
a goal. Regardless of genetics, seeing stress as a positive force can help anyone handle pressure better, according to the researchers.

--Compiled by Elise Garofalo for NewsHour Extra
DISCUSSION QUESTIONS (more research might be needed)

1. Do you think you’re a “warrior” or a “worrier”? Why?

2. What do you do to prepare for a test?

3. What helps you de-stress?

4. What types of competition make you the most nervous? How do you think you can overcome that?

Extension Activity
Have students write a 300-500 word essay on this topic providing clear examples. Send your completed editorial to NewsHour Extra (extra@newshour.org). Exceptional essays might be published on our Web site.
Using NewsHour Extra Feature Stories

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February 25, 2013

**Estimated Time:** One 45-minute class period with possible extension

**PROCEDURE**

1. **WARM UP**
   Use initiating questions to introduce the topic and find out how much your students know.

2. **MAIN ACTIVITY**
   Have students read NewsHour Extra's feature story and answer the reading comprehension and discussion questions on the student handout.

3. **DISCUSSION**
   Use discussion questions to encourage students to think about how the issues outlined in the story affect their lives and express and debate different opinions.

**INITIATING QUESTIONS**

1. Do you get stressed out when you take tests? Why?

2. How do you handle stress?

3. Do you think you do better on tests or on class work?

**READING COMPREHENSION QUESTIONS**

1. **What two variations does the COMT gene have?**
   One works quickly and one that works slowly, or the “warrior” and “worrier” genes

2. **How many people have each type of the gene?**
   50 percent of people have each type

3. **What do each of the variants do?**
   The fast-acting COMT gene get a surge of dopamine that helps them perform better on tests, where those with the slow-acting gene did better in the classroom.

4. What can people with the “worrier” gene do to overcome their anxiety?
Use positive thinking and training in a stressful context; they should think of their stress as a motivator.

5. How can activities like spelling bees, science fairs and sports help the “worriers”? It can help them associate a feeling of nervousness with having fun with competition and accomplishing a goal.

DISCUSSION QUESTIONS (more research might be needed)
1. Do you think you’re a “warrior” or a “worrier”? Why?
2. What do you do to prepare for a test?
3. What helps you de-stress?
4. What types of competition make you the most nervous? How do you think you can overcome that?

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Student Worksheet

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READING COMPREHENSION QUESTIONS

1. What two variations does the COMT gene have?

2. How many people have each type of the gene?

3. What do each of the variants do?

4. What can people with the “worrier” gene do to overcome their anxiety?

5. How can activities like spelling bees, science fairs and sports help the “worriers”? 
DISCUSSION QUESTIONS (more research might be needed)
1. What type of movies typically win at the Oscars? Do you usually agree with who wins? Why or why not?

2. How do you think you would feel if you were nominated for an Academy Award at such a young age?

3. Look at a list of nominees for the Academy Awards this year. Who do you think should win in the major categories? Why?

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