Medical Xpress

Scary music is scarier with your eyes shut

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The power of the imagination is well-known: it's no surprise that scary music is scarier with your eyes closed. But now neuroscientist and psychiatrist Prof. Talma Hendler of Tel Aviv University's Functional Brain Center says that this phenomenon may open the door to a new way of treating people with Alzheimer's, Parkinson's and other neurological diseases.

In her new study, Prof. Hendler found that the simple act of voluntarily closing one's eyes — instead of listening to music and sounds in the dark — can elicit more intense physical responses in the brain itself. This finding may have therapeutic value in treating people with brain disorders. Her research was just published in *PLoS One* and builds on her 2007 study published in *Cerebral Cortex*.

Prof. Hendler's research suggests that, when our eyes are closed, a region in our brain called the amygdala is fired up. The experience of scary music becomes more emotionally and physically intense. And the converse of the scary music effect may be true: happy music could produce a joyous effect when our eyes are shut as well.

Listening to sounds with our eyes closed seems to wire together a direct connection to the regions of our brains that process emotions, says Prof. Hendler. "Music is a relatively abstract emotional carrier," says Prof. Hendler. "It can easily take one's subjective personal experience and manipulate it. Our new findings, however, suggest that the effect is not only subjective. Using a functional MRI (fMRI), we can see that distinct changes in the brain are more pronounced when a person's eyes are not

being used."

Alfred Hitchcock in the laboratory

Dr. Yulia Lerner, a post-doctoral fellow at Prof. Hendler's lab, had 15 healthy volunteers listen to spooky Hitchcock-style music, and then neutral sounds with no musical melody. They listened to these twice, once with their eyes open and a second time with their eyes shut, as she monitored their brain activity with an fMRI. While volunteers were listening to the scary music, Dr. Lerner found that brain activity peaked when the subjects' eyes were closed. This medical finding corresponded to volunteer feedback that the subjects felt more emotionally charged by the scary music.

The amygdala, the region of the brain in which emotions are located, was significantly more active when the subjects' eyes were closed. "It's possible that closing one's eyes during an emotional stimulation, like in our research, may help people through a variety of mental states. It synchs connectivity in the brain," Dr. Hendler says. "We don't know exactly how or why this happens -- it's like a light switch gets turned off, allowing the brain to better integrate the highs and lows of the emotional experience when the eyes are shut."

Music brings balance to the brain and more readily integrates the affective and cognitive centers of our mind. Music may help us think better and even improve our learning abilities. But, she warns, more studies are needed before you let your teen crank up the hip-hop music as a study aid.

Applications for dementia and systemic brain disorders

"This study is the first time scientists have looked inside the brain non-invasively, to examine what happens to the brain under these conditions," says Prof. Hendler. Small physical behaviors can radically alter the balance and color of emotions. Not long ago in U.S. classrooms, teachers found that hyperactive students learned better while standing, rather than sitting at their desks. Now, Prof. Hendler's latest study with scary music is "just an example of how a small manipulation in one's physical state such as eyes open or shut can change our mental experience," she says.

The findings, researchers hope, can be applied to therapies that achieve more significant and longer-lasting effects without chemical intervention. While her study just touches on the connection of physical and emotional activity in the brain, Prof. Hendler doesn't rule out music therapy in alleviating symptoms in chronic mental disorders such as depression, Schizophrenia and Parkinson's, in the future.

Source: Tel Aviv University (news : web)

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