What causes laughter? [1]

Dear Alice,

I was wondering what exactly makes us laugh? And why is it so hard to stop ourselves from laughing?

Answer

Dear Reader,

The technical term for the physiological study of laughter is the not-so-funny-sounding word, gelotology. Human laughter may have its origins as a gesture of shared relief at the passing of danger or tension. Movie-makers are well aware of this phenomenon and often use laughter as a relief from building tension in dramatic or suspenseful scenes. Some researchers also believe that laughter can strengthen human connections, and is useful in helping people become more comfortable with each other. We humans are social animals which may be why the average adult laughs about 17 times a day.

In terms of what we find funny, there seems to be three general categories of what makes us laugh. The incongruity theory suggests that it is humorous when logic is turned on its head, as when a joke or story takes an unexpected turn, or when non-sequitors are used, as with the old joke:

*How many surrealists does it take to change a light bulb?*
*Two? one to hold the light bulb, the other to fill the bathtub with brightly-colored kitchen objects.*

The superiority theory (aka Schadenfreude) focuses on laughter that arises at someone else's mistake or misfortune, as when a cartoon character slips on a banana peel or has an anvil drop on them out of the sky. The relief theory, briefly described above, posits that laughter arises as a relief to pent-up emotions or passing danger.

Neurologically, laughter seems to be produced via a circuit that runs through many regions of the brain. One study showed that within four-tenths of a second of exposure to something potentially funny, an electrical wave moved through the cerebral cortex, the largest part of the brain. The left side of the cortex analyzed the words of the joke, the frontal lobe, associated with social emotional responses, became very active, and the right hemisphere dealt with the intellectual analysis needed to "get" the joke. The limbic system, which lies just beneath the
cerebral cortex, controls many functions associated with mood, friendships, and love, and also seems to be central to the production of laughter. Once the joke was understood as funny, the motor aspects of laughter initiated.

Physically, many facial muscles contract when someone laughs. In extreme circumstances, the tear ducts are activated. Additionally, the epiglottis half-closes the larynx, so that air intake occurs irregularly, making you gasp. Laughter also provides an enjoyable workout for the muscles of your diaphragm, abdomen, respiratory tract, and back. Researchers estimate that laughing 100 times is equal to ten minutes on the rowing machine or 15 minutes on an exercise bike. Not a bad way to fit in a workout!

While it's happening, laughter increases blood pressure and heart rate, but it reduces stress hormones like serum cortisol, growth hormone, and catecholamines. In addition, laughing boosts immune responses. After the laughter, overall blood pressure is lowered, and there is an increase in vascular blood flow and in oxygenation of the blood. Muscles are more relaxed, and there is an inhibition of the biological fight-or-flight response.

It's unclear why it can be so hard to stop laughing once you start. Since laughing can be pretty beneficial for your body, emotional health, and your social connections, in the midst of a laugh-attack, you can celebrate the fact that something contagious is actually good for you.

Alice!
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