

# Laughter Is Indeed Good Medicine

Just thinking about laughing makes you feel better.

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They say that laughter is the best medicine, and now research is beginning to prove that this adage might be truer than we think. Laughter has long been known to make people happier, but a new study has shown that even anticipating a good laugh is good for your health.

When stressed out, the body constricts blood vessels, elevates the production of potentially damaging stress hormones, and raises blood pressure. Short periods of stress are normal and not dangerous, but over long periods of time stress weakens the immune system and makes heart problems more likely.

In 2005 researchers found that laughing lowers blood pressure, but the biochemical mechanism within the body remained unclear. Now Lee Berk at Loma Linda University in California and his colleagues have revealed part of the answer.

## He who laughs first

Back in 2006, Berk and his colleagues found that merely anticipating laughter boosted the production of mood-elevating hormones called  $\beta$ -endorphins and the immunity-enhancing human growth hormone by 27% and 87%, respectively. This led the team to wonder whether the link between lowered blood pressure and laughter could be the result of laughter somehow interfering with the production of stress hormones.

To test this, they worked with a group of 16 men. Half were told that they were going to watch a humorous video that they themselves had selected earlier; the other half were told that they were going to sit in a room with magazines. The researchers monitored the men for levels of the stress hormones cortisol and adrenaline, and for dihydroxyphenylacetic acid (DOPAC) — a metabolite of dopamine that helps to produce adrenaline — throughout the experiment.

Berk and his team report today at the 121st Annual Meeting of the American Physiological Society in San Diego, California, that levels of all three stress chemicals decreased before, during and after the men viewed their videos. Thirty minutes after the videos were watched, cortisol was down 67%, adrenaline was down 35%, and DOPAC was down 69%. But what really shocked the team was that cortisol, adrenaline and DOPAC decreased by 39%, 70%, and 38% respectively before anything funny was seen. “It would seem that merely having a merry heart in anticipation of the happy experience lowered stress levels... they dropped before videos were even watched” says Berk.

## No laughing matter

Berk and his team are serious about the study of laughter, because the potential applications are huge. “It’s no joke, we need to start prescribing humour as medication” says Berk. Immune disorders are known to be exacerbated by stress, and if getting immune-disorder patients to anticipate happiness or

laughter reduces concentrations of stress chemicals in the blood, then this therapy can only serve to help, explains Berk.

Stress hormones do a lot more than regulate the immune system, they contribute to many health-related issues such as depression, high blood pressure and control of diabetes, says Bruce Rabin, a pathologist and psychiatrist at the University of Pittsburgh Medical Center in Pennsylvania. “Looks like my grandmother was right, laughter is the best medicine,” Rabin adds.

The next step is to understand the biochemical pathways that allow communication between this humour region of the brain and the hormone-releasing section of the endocrine and immune systems. Berk says he thinks that cytokines — the peptides that are produced by the immune system and regulate how it responds to outside agents and neurological activity — are the key. “We need to figure out which cytokines are doing what and how they are modulating in response to laughter” says Berk.