Studying the biology of hope: An interview with Lee S. Berk, DrPH, MPH. Interview by Sheldon Lewis.

“During the Society for Neurosciences' annual 2001 meeting Dr Berk presented and received major media coverage of a landmark paper entitled, "The Anticipation of a Laughter Eustress Event Modulates Mood States Prior to the Actual Humor Experience." More recently Dr Berk presented at the FASEB (Federation of American Societies for Experimental Biology) annual 2006 meeting in the American Physiological Society section another landmark paper entitled, "Beta-Endorphin and HGH Increase are Associated With Both the Anticipation and Experience of Mirthful Laughter," with further major media coverage. Recently, Dr Berk spoke about his work with Sheldon Lewis, editor in chief of Advances.

How Positive Emotions Build Physical Health
Perceived Positive Social Connections Account for the Upward Spiral Between Positive Emotions and Vagal Tone

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Abstract

The mechanisms underlying the association between positive emotions and physical health remain a mystery. We hypothesize that an upward-spiral dynamic continually reinforces the tie between positive emotions and physical health and that this spiral is mediated by people’s perceptions of their positive social connections. We tested this overarching hypothesis in a longitudinal field experiment in which participants were randomly assigned to an intervention group that self-generated positive emotions via loving-kindness meditation or to a waiting-list control group. Participants in the intervention group increased in positive emotions relative to those in the control group, an effect moderated by baseline vagal tone, a proxy index of physical health. Increased positive emotions, in turn, produced increases in vagal tone, an effect mediated by increased perceptions of social connections. This experimental evidence identifies one mechanism—perceptions of social connections—through which positive emotions build physical health, indexed as vagal tone.

Results suggest that positive emotions, positive social connections, and physical health influence one another in a self-sustaining upward-spiral dynamic.
Laughter and Play Activates Your Immune System and increasing your energy for getting well!
The Science is in! What you always knew instinctively to be true - laughter and play have been proven to be beneficial to your health.

During my 15 years experience developing and participating in conferences based on the Healing Power of Laughter and Play I met two amazing researchers, Dr. Lee S. Berk and Dr. Stanley Tan of Loma Linda University in California. They have been studying the effects of laughter on the immune system since 1984. To date their published studies have shown that laughter boosts the immune system by:

- Lowering blood pressure.
- Reducing stress hormones.
- Raising levels of infection-fighting T-cells, disease-fighting proteins called Gamma-interferon and B-cells, which produce disease-destroying antibodies.
- Triggering the release of endorphins, the body's natural painkillers, and producers of a general sense of well-being.

There have been numerous articles in scientific journals, newspapers and magazines about their ground-breaking research. I will be including some of those articles here on this site, as well as links to other sites that I think you may find of interest. HAPPINESS HEALS! It is a scientific fact. I think it is important to include some of these important studies to help you strengthen your belief that when you are engaged in or merely thinking about things that bring you joy, you are igniting your natural healing systems!

Loma Linda University School of Medicine news |March 11, 1999
Laughter research conducted at LLUMC

Although you may never see him sporting a red clown nose, big shoes, or wearing a bedpan on his head, Lee Berk, DrPH, MPH, believes in using laughter to help sick people feel better.
In fact, just like his real-life friend, Hunter "Patch" Adams, MD (portrayed in the recent hit movie of the same name by Robin Williams), Dr. Berk--associate director for the Center for Neuroimmunology, assistant research professor in the Loma Linda University School of Medicine, and assistant clinical professor of health promotion and education in the School of Public Health--believes that because a patient is more than just a disease, it's important to look at the whole person when providing medical treatment.

But you won't find Dr. Berk performing a comedy routine for patients like Dr. Adams does. Instead, he's the man behind the scenes, conducting the research that proves to nay-sayers what others have only theorized: that laughter does indeed lower stress hormones and give the immune system a boost.

Dr. Berk's research into laughter's benefits began in the late 1970s, when his studies on exercise showed that it not only boosted the immune system, it also decreased stress hormones in the body.

These findings led Dr. Berk and his colleague Stanley Tan, MD, assistant professor of medicine at Loma Linda University, to look for something else--something universal--that might also have the same effect. They hit upon mirthful laughter as a possibility.

They extended a research invitation to William Fry, MD, then a psychiatrist at Stanford University, who had researched changes in blood pressure and heart rate related to laughter.

"Having the new tools in medicine to look at some of these stress hormones, we said [to Dr. Fry], 'Fly down, bring your Laurel and Hardy tapes, let's sit down, we'll place an IV in your arm and we'll draw continuous blood samples while you're watching the tapes,'" Dr. Berk says.

Dr. Fry accepted the invitation. "That was the initiation of everything," Dr. Berk adds. "We looked at the data and we fell on the floor. It was mind-blowing." Since that time Drs. Berk and Tan have conducted controlled scientific experiments that have proven those early results.
They found first of all that laughter increases the immune system’s activity. Here’s how it works:

- Natural killer cells (the cells that attack virus and tumor cells) increase in number and activity.
- More T cells (which wait to be told to do something) are activated than normal.
- The antibody immunoglobulin A (which protects the upper respiratory tract) increases.
- Gamma interferon increases. This cytokine tells different components of the immune system to turn on.
- Immunoglobulin G (the immunoglobulin produced in the greatest quantity) and Complement 3 (which helps antibodies pierce dysfunctional or infected cells) increase both during laughter and the next day.

The research also showed that in general, stress hormones--which actually constrict blood vessels and suppress immune activity--decrease in the body as a result of laughter.