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## Loma Linda University School of Medicine news

March 11, 1999

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### 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

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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.

Dr. Berk's research has fit in perfectly with the Loma Linda University and Medical Center motto, 'To make man whole.'

"After all, as stated in Proverbs 17:22, 'A merry heart is like a good medicine,'" says Dr. Berk.

Many programs--including several for cancer patients--have resulted from his findings on laughter's benefits:

The Laughter Library is one such example. Early last year, the Loma Linda University Cancer Institute began stocking humor materials that patients can check out.

Now, says Jann Cady Marks, RN, MBA, executive director of the Institute, the library exists in three locations for patients' convenience: the ninth floor of the Medical Center, the outpatient medical oncology area (where patients come for chemotherapy treatments), and at the Cancer Resource Center.

Patient TV. According to Janis Tucker, RN, media specialist, audiovisual communications has begun offering more comical programming on the patient television stations within the hospital as a result of Dr. Berk's research.

SMILE. Dr. Berk collaborated with Barry Bittman, MD, to develop

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answer a few easy questions about how they're feeling and what types of humor they enjoy, and then receive what Dr. Berk calls a 'humor prescription'--a detailed list of suggested reading materials, videotapes, and audiotapes that the person might enjoy.

Even though it's located at the Cancer Resource Center, SMILE isn't just for cancer patients. Sheryl McWilliams, RN, director of the Center, encourages anyone who's interested in learning more about their humor preferences to come take the free, 10-minute computer questionnaire.

"[We even] help people learn how to use the program if they're not familiar with computers," Ms. McWilliams says.

The future of mind-body research is bright, according to Dr. Berk. As associate director of the School of Medicine's Center for Neuroimmunology, which opened in 1998, he plans to continue his current studies into the effects of exercise, nutrition, and music on the immune system, and how humor affects pain tolerance and the need for pain medication.

"We're more aware that there is a significant relationship between the mind and the body," Dr. Berk says. "Now medical science is starting to recognize with substantial scientific support what we as an institution were well aware of many years ago--the true right and benefit of whole-person care."

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