

Bacterial Therapy Improves Eczema Symptoms

Bacteria from healthy skin fights bacteria that exacerbates eczema

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DENVER — Researchers at National Jewish Health and the University of California San Diego School of Medicine have identified a strain of bacteria derived from healthy human skin that can improve symptoms of the most common type of eczema, also known as atopic dermatitis.



In the paper published Feb. 22, 2021, in *Nature Medicine*, the research team investigated the safety and mechanisms of *Staphylococcus hominis* in a first-in-human, Phase I, double-blinded clinical trial looking to treat people living with eczema. Of the 54 participants, two-thirds reported improvements in their symptoms, including fewer complaints of itchiness and inflammation.

“This research is a unique approach to targeting harmful bacteria that aggravates atopic dermatitis with beneficial bacteria applied to the skin,” said study co-author Donald Leung, MD, allergist and immunologist at National Jewish Health and a co-author of the study. “It’s our hope this will help patients with eczema rid their skin of the harmful bacteria causing the inflammation. Future studies will determine if this new cream can be used for long periods’ of time to reduce the severity of eczema and improve the patient’s quality of life.”

Researchers screened more than 8,000 isolates of Staphylococcal bacteria derived from the skin of individuals without eczema, and identified a few strains that inhibited growth of *Staphylococcal aureus*. These strains were evaluated for additional characteristics, such as decreased capacity to damage skin, and sensitivity to common antibiotics.

The screening resulted in the identification of a single strain of bacteria called *Staphylococcus hominis* A9 that could be used for the treatment of atopic dermatitis.

“The main question we wanted to answer was if this was safe. This was a safety study,” said Richard Gallo, MD, PhD, Ima Gigli Distinguished Professor of Dermatology and chair of the Department of Dermatology at UC San Diego School of Medicine. “We found exactly what we hoped to find. The eczema of participants who received the bacterial treatment improved and there were no adverse events.”

Healthy human skin is alive with bacteria — there are more microorganisms living in and on the human body than there are human cells. Most microbes reside on human skin without causing harm, but in some people, bacterial pathogens can negatively alter a person’s health.

According to the National Eczema Association, nearly 18 million people in the United States have atopic dermatitis, the most common form of eczema, which is a chronic, itchy rash that commonly appears on the arms, legs and cheeks.

“From our research, we’ve determined this rational therapeutic approach for atopic dermatitis appears to be safe for people to use to treat their eczema,” said Gallo. “And it’s easy, too, because it’s just a cream and avoids the side

effects of steroids and other drugs that target the immune system.”

National Jewish Health is the leading respiratory hospital in the nation. Founded 121 years ago as a nonprofit hospital, National Jewish Health today is the only facility in the world dedicated exclusively to groundbreaking medical research and treatment of patients with respiratory, cardiac, immune and related disorders. Patients and families come to National Jewish Health from around the world to receive cutting-edge, comprehensive, coordinated care. To learn more, visit the [media resources page](#).

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