

Sweet Healing from Bees

The ancient Egyptians used to spread honey on wounds to speed healing. Four thousand years later, Jennifer Eddy does the same thing.

Eddy, assistant professor of family medicine at the University of Wisconsin School of Medicine and Public Health, first used honey several years ago as a last resort. Her patient, a 79-year-old man with type 2 diabetes, had large open ulcers on his feet that were continuing to worsen despite standard medical treatment. Nonhealing foot ulcers are a common and serious problem for diabetics, who have reduced sensation and poor blood circulation in their feet. The ulcers often require amputation of a toe, foot, or leg to stop the spread of infection. “Nothing we tried medically was working,” Eddy says. “He refused amputation and he was going home to die.”



Honey can kill microbes and treat wounds.

(John B. Free / naturepl.com)

Meanwhile, Eddy left for a honeymoon trip, where she happened to read a book about folk remedies. It mentioned using honey to treat wounds. Eddy remembered another book, *The Healing Hand*, written by one of her pathology professors, that described ancient Egyptians using honey the same way.

When she returned to work, she found reports in the medical literature supporting the healing powers of honey. Her patient agreed to give it a try. He stopped taking antibiotics, and once a day his wife spread a thick layer of supermarket honey on gauze squares that she taped on his wounds. To everyone's delight, the wounds improved quickly and, after several months, healed completely.

In the last few years, more scientific studies have backed up honey's benefits, and, in 2007, the FDA approved several medical-grade honeys for use in treating wounds. Honey attacks microbes on at least three levels, according to Eddy. First of all, honey has very low water content. “If you put it next to something that has water in it, like bacteria or a wound, it will suck the water out of it,” Eddy says. “So it dehydrates bacteria.” Second, it's acidic, which wound-dwelling bacteria don't like. (A drawback of honey therapy is that it may sting after application.) Third, honey contains an enzyme that leads to the production of hydrogen peroxide, which kills bacteria. Because honey kills microbes several ways, microbes have a hard time evolving resistance to it. Some studies show that honey helps uninfected wounds heal faster, too. Eddy says that's because honey acts like a moist bandage that allows new skin cells to form around the edges of the wound. It also pulls water from the wound, reducing swelling and improving blood supply.

So why do bees need antimicrobial honey? There seems to be a logical explanation: Honey is their main food source, and it's all they have to eat over the winter. If it were to get moldy or infested with bacteria, the entire hive could starve.

Today, Eddy is running a pilot study in the clinic at her university hospital to rigorously evaluate honey's effectiveness in treating diabetic foot ulcers. Half of the patients are receiving the honey treatment, and half are being treated with a placebo that looks and smells like the real thing. Neither the patients nor the doctors will know which is which until all the wounds have been evaluated for healing. Eddy expects the results of the study to be available in about a year. While there is evidence that honey helps other kinds of wounds heal, Eddy is focusing on diabetic foot ulcers because of their cost to diabetics and to society. People with diabetic foot ulcers typically receive multiple courses of antibiotics, leading to the development of antibiotic-resistant bacteria. “Having a nonhealing wound helps grow those bad bugs,” she says. “Diabetic foot ulcers are a societal repository for some of the most resistant bacteria.”

Name _____

Date _____ 1 2 3 4 5 6 7

“Sweet Healing from Bees” article questions

Directions: Read the article and **answer in complete sentences!**

1. Who first started using honey for purposes other than consumption? What did they use it for?
2. What are the three ways in which honey gives these benefits?
3. Explain one drawback to using honey for this purpose.
4. Explain how honey therapy relates to the cell unit. Be specific.