

# What's Causing These Itchy Irritating Lesions on So Many Pets and People?

The human and canine versions of this share several key features, including the presence of Staph bacteria and a stunning lack of diversity of microbiome cells. Now this 'gross' solution is growing in popularity, as it works — and also avoids the use of antibiotics.

Reviewed by [Dr. Becker](#)

## STORY AT-A-GLANCE

- Atopic dermatitis (AD) is an inflammatory skin condition that affects both people and dogs. It causes itching, redness, swelling, and cracks in the skin
- Because the condition is similar in dogs and humans, University of Pennsylvania researchers conducted a study of AD in dogs
- Study results showed an overgrowth of pathogenic bacteria in AD dogs, a decrease in the diversity of skin bacteria (the “microbiome”), and a weakening of the skin’s protective barrier
- The Penn researchers hope this study and others will lead to treatments for AD that don’t involve antibiotics, for example, microbiome transplants
- Fecal transplants, a form of microbiome transplant, are already in use in the U.S. and elsewhere to treat life-threatening intestinal infections in humans, and a wide range of disorders in veterinary patients

***Editor's Note: This article is a reprint. It was originally published August 14, 2016.***

Atopic dermatitis (AD), also called atopic eczema, is a chronic inflammatory condition that causes itching, redness, swelling, and cracks in the skin.

Estimates are that about 10% of the U.S. human population, and 10% of the dog population as well, suffers from the disorder. Interestingly, atopic dermatitis is much more prevalent now than it was 50 years ago.

The human and canine versions of atopic dermatitis share several important features, including the presence of abnormal amounts of pathogenic (disease-causing) staphylococcus bacteria on the skin. In humans, the strain is *Staphylococcus aureus*; in dogs, it’s *Staphylococcus pseudintermedius*.

A team that included veterinary dermatologists, microbiologists, pathologists, and scientists at the University of Pennsylvania took a closer look at canine atopic dermatitis.

# Dogs with Atopic Dermatitis Have an Overgrowth of Harmful Bacteria on the Skin

The Penn study involved 32 dogs, 15 with AD and 17 without.<sup>1</sup> The researchers took three swabs from several areas of skin during the study.

The first swabs were taken during AD flare-ups, the second were taken after four to six weeks of targeted antibiotic therapy, and the final swabs were taken four to six weeks after treatment ended.

The team used the swab samples to measure the microbiomes (populations of bacteria) on the dogs' skin, plus the function of the skin's barrier during an AD flare up.

During AD flares, the dogs had a significant decrease in the diversity of bacteria on the skin. This suggests that the abnormal growth of harmful bacteria (specifically, *Staphylococcus pseudintermedius*) had inhibited growth of beneficial species of bacteria.

The dogs with AD had nearly 10 times the amount of staphylococcus bacteria as the control dogs. Another opportunistic genus, corynebacterium, also increased on the skin of the AD dogs, just as it does in humans with atopic dermatitis.

The second set of skin swabs were taken immediately following antibiotic therapy, and showed the amount of staphylococcus and corynebacterium, and the diversity of the dogs' skin microbiome, had returned to approximately the same levels as the control dogs.

The levels measured at four to six weeks post-antibiotic treatment remained about the same.

## Dogs with AD Also Have Weakened Skin Barrier Function

It is thought that when the skin's ability to protect itself by keeping moisture in and bad bacteria out is compromised, there is the potential to trigger or exacerbate atopic dermatitis.

To test this hypothesis, the Penn researchers used a standard test of water loss rate through the skin to measure the function of the dogs' skin barrier at each of their three skin swab visits.

The results showed that low bacterial diversity during AD flares caused skin lesions and impairment of the skin's protective barrier. According to senior author Elizabeth A. Grice, PhD, of the Perelman School of Medicine at Penn:

*"We don't know if the bacterial overgrowth is weakening the skin's barrier function or a weakening of the barrier is enabling the bacterial overgrowth, but we do know now that they're correlated, and that's a novel finding."*<sup>2</sup>

The research team is also conducting additional studies of the microbiome in canine atopic dermatitis, especially with regard to how antibiotics promote bacterial resistance.

The Penn researchers believe that in cases of atopic dermatitis in humans and dogs, there is a comparable relationship between microbes, skin barrier function and the immune system.

They hope the results of their study and other similar studies will ultimately lead to methods of altering the microbiome of the skin without resorting to the use of antibiotics. According to lead study author Dr. Charles Bradley of Penn's School of Veterinary Medicine:

*"The findings highlight the importance of dogs as a model for human dermatitis and help lay the groundwork for new therapeutic strategies, for example involving microbiome transplants to compete with the harmful bacterial overgrowth, as an alternative to **antibiotic therapy**."*<sup>3</sup>

## Speaking of Microbiome Transplants

Bradley's mention of skin microbiome transplants is very encouraging! It's good to know the traditional veterinary community understands the urgent need for alternatives to the overuse of antibiotics.

Dr. Margo Roman uses cutting-edge fecal transplants, also called microbiome restorative therapy, to provide an all-natural cure for a wide variety of health and behavioral challenges in pets.

Fecal transplants involve taking the poop of a healthy animal and introducing it into the body of an unhealthy animal. Roman says that by using fecal transplants, she was able to successfully cure:

- A Standard Poodle whose owner had spent over \$16,000 attempting to treat severe gastrointestinal problems and Addison's disease
- A Wirehaired Fox Terrier with digestive issues, anxiety, and aggression
- A cat with severe atopic dermatitis and scabs all over his face
- A service dog, a Labrador Retriever, with coprophagia (poop eating) and anxiety

## Fecal Transplants Are Receiving Widespread Acceptance

Microbiome restorative therapy is receiving wide acceptance both in the U.S. and in other countries. In the U.S., fecal transplants to treat *Clostridium difficile* (C. diff), a devastating intestinal bacterial infection, are widely accepted as being 97% effective in curing the infection.

To learn more about fecal transplants, visit Roman's website, **Eat Sh\*t & Live**. There, you'll find research articles from major U.S. hospitals (e.g., Massachusetts General, Mayo Clinic, and Cedars Sinai) currently performing fecal transplants in humans.

The process Roman uses involves an inexpensive everyday blender. She puts the healthy poop in the blender with regular saline and blends it for a short time. Then it is filtered so that the mixture can be loaded into a syringe.

Next she administers rectal ozone to the patient to get rid of the gut biofilm, which is a sort of mucosal slime that grows on surfaces lining the gut and protects harmful bacteria. After a few minutes, she takes the dog outside to poop to clear out the colon. Then she syringes the poop mixture, which is like liquid slurry, into the rectum, and massages the colon in an up and down motion to give the transplant an opportunity to "find its new home."

Before any of this can happen, the dog's gut has to be made suitable to accept the transplant. The dog must be eating a GMO-free, fresh raw diet. He must be given **probiotics**, perhaps colostrum, and nutraceuticals and glandulars that support gut health. Roman has learned that when the gut is prepared in this way, the fecal transplant works, and it

works in one treatment.

A GMO-free diet is important for successful fecal transplants. The genetically modified organisms or GMOs found in most commercial pet foods (e.g., GM corn, wheat, and soybean) kill the microbiome. Glyphosate, the pesticide in GM crops, is designed to do just that.

Roman is currently successfully treating all types of gastrointestinal (GI) issues, including irritable bowel syndrome (IBS), C. diff, C. perfringens, and giardia, as well as kidney and liver issues, behavior, and cancer.

## **Additional Commonsense Approaches to Atopic Dermatitis**

In addition to fecal transplants, there are other all-natural treatments that can significantly reduce how frequently your dog has flare-ups of atopic dermatitis. Because the condition is characterized by an overabundance of bacteria, topical therapy in place of oral antibiotics is ideal for this condition.

Bathing dogs with naturally antibacterial shampoos can offer the same benefits as oral antibiotics (killing off the bacterial overgrowth) without any negative side effects (except a little hard work on your part). Therapeutic baths and rinses for these patients bring great success.

Disinfecting baths are one of the most underutilized therapies in veterinary dermatology (probably because they're almost free). Bath dogs in peppermint or tea tree shampoo designed for dogs several times a week to naturally help control bacterial levels on the skin, then do a weekly coconut oil mask to improve the integrity of the skin barrier.

## **Sources and References**

<sup>1</sup> [Journal of Investigative Dermatology](#), June 2016, Volume 136, Issue 6, Pages 1182-1190

<sup>2,3</sup> [Phys.org](#), April 25, 2016

---