

Interview with Brennen McKenzie, the SkeptVet

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Complementary and alternative veterinary medicine is a multimillion-dollar industry that encompasses everything from reiki to nutritional supplements, and offers treatments for a full range of medical and behavioral complaints. From the five-dollar “calming treats” we can pick up from any online retailer to the specialist chiropractic regime that can run into hundreds of dollars, there’s an alternative solution to every problem.

As behavior consultants, we are often asked to weigh in professionally on whether our clients—whether that’s an individual family or a rescue organization—should devote their time and resources to trying an alternative, holistic treatment before (or even instead of) a more traditional Western veterinary approach.

We need to know how best to answer these questions, and for that, we need to understand how complementary and alternative medicine fits—or doesn’t—into the rest of science. Taking a science-based approach to training and behavior modification for our client animals without extending this same focus to other elements of their treatment plan is myopic, and potentially dangerous.

Brennen McKenzie, VMD, MS, has done more than most to educate the public about science-based veterinary medicine. His [SkeptVet blog](#) highlights the lack of evidence we have that many of the most commonly accepted complementary therapies work, and draws attention to the tension between fundamental principles of biology and physics and the mechanisms that are supposed to underpin many types of alternative treatment. In this interview, we ask Dr. McKenzie more about his work, and about what it means to take a science-based approach to our interventions with client animals.

How did you first come to be exposed to complementary and alternative veterinary medicine (CAVM)?

There was some discussion of alternative methods when I was in veterinary school, primarily initiated by students belonging to CAVM-oriented groups. However, I only began to seriously investigate CAVM practices when I started practicing as a veterinarian. Clients would sometimes ask me about alternative therapies, and I wanted to be able to provide accurate, informed answers to their questions.

Prior to vet school, my only exposure was through the media, and I had a fairly positive view of these approaches. I was actually rather surprised when I began looking into the relevant science how little support there was for the claims I had heard.

What inspired you to start the SkeptVet blog?

I wanted to give my clients accurate and useful information; I put a fair bit of effort into researching specific CAVM practices and over-the-counter remedies, and I wanted to make this work useful to the other doctors at my hospital and clients other than my own, so I began writing short handouts based on my investigations. I then thought this work might be useful to other pet owners and veterinarians, and I was aware that nearly all of the information about CAVM on the Internet consists of marketing and promotion by CAVM practitioners, so I decided to post my handouts online to help balance this advertising and give people more information to consider when evaluating CAVM options.

This led to the creation of the blog.

Can you recall some specific incident that galvanized you?

I have had a number of direct experiences with the harm CAVM can do, and these have helped maintain my motivation to provide science-based information about these practices for animal owners. One of the most dramatic was a case involving a chiropractor.

I was once asked to examine a rabbit that had come to my hospital to be treated by a chiropractor, at the advice of another veterinarian. The rabbit had been anesthetized for treatment of dental disease earlier in the day, and upon waking was paralyzed in its hind legs. Even a cursory familiarity with rabbit medicine would immediately lead one to consider a fracture or dislocation of a lumbar vertebra, as these can happen when rabbits kick their powerful hind legs uncontrollably, and rabbits are susceptible to disorientation and panic when emerging from anesthesia.

In this case, the rabbit had the typical symptoms associated with a spinal cord injury in the lower back. The science of locating a lesion in the nervous system is well established and a basic part of the training veterinarians, and supposedly chiropractors, receive in conducting a physical examination. The history and physical exam findings made a broken back almost the only possible diagnosis in this rabbit.

The chiropractor, however, examined the rabbit and concluded it had a subluxation in its neck. He recommended giving a chiropractic adjustment to the neck and sending the pet home, with additional adjustments likely necessary in the following days or weeks. When I asked how he reconciled his diagnosis with the symptoms and history, which fit the classic pattern associated with a spinal cord injury in the lower back, the chiropractor informed me that he was familiar with “allopathic” neurology textbooks but had chosen to ignore them because they were not consistent with his daily experience in practice.

The client permitted me to take an x-ray which confirmed a traumatic lumbar vertebral fracture and severe spinal cord trauma. The patient was humanely euthanized in light of the severe symptoms and poor prognosis. Though this was sad, I consider it a better outcome for the animal than having its neck twisted and being sent home paralyzed and with a fractured spine but without any pain control, as the chiropractor had recommended.

What would you say to people who claim there’s “no harm” in trying alternative approaches, particularly as part of behavior modification protocols?

There are several ways in which alternative therapies can be harmful. Some can directly injure patients or make their condition worse. The claims of near-complete safety made for CAVM are as unproven, and as unlikely to be true, as many of the claims for dramatic benefits. Without proper scientific research, we cannot simply assume something is safe because it is labeled “natural” or because the person selling it says so. There is actually a [large body of literature](#) showing how people have been directly harmed by many different CAVM practices, from chiropractic and acupuncture to herbs and supplements and even homeopathy, which is often assumed even by critics to be harmless.

Probably the more common way in which CAVM hurts patients is by delaying or taking the place of truly effective scientific medical treatment. Even if an alternative therapy does no direct harm, patients can experience unnecessary suffering, worsening disease, or even an increased risk of death if ineffective methods are used instead of treatments that work, or if effective care is delayed. One poignant example of this was a Rottweiler named Titan.

Titan was a solid, powerful 110-pound Rottweiler with a gentle, affectionate personality. When I met him, he was suffering from a painful and incurable bone tumor in his right front leg. Though he was a stoic dog, he was clearly in great pain. He would not put his paw on the ground to walk, and he whimpered at even the lightest touch on his tumor.

His owner was deeply distressed by the idea that she would very soon lose Titan. She had a strong personal faith in what she thought of as “natural” medical therapies, and a deep distrust of conventional medicine, especially drugs. Despite this, she had come to me to see if I could offer any hope for a cure for Titan, or at least a long-term delay in his death.

Unfortunately, I had to tell her honestly that even the most aggressive treatments for this type of cancer would only delay its spread by a few months, and these treatments consist of surgery and chemotherapy, treatments she was not willing to consider in any case. However, I did have a number of pain control therapies to offer Titan that would have greatly decreased his discomfort.

His owner seemed surprised, and a bit offended, when I mentioned the subject of pain control. She explained that she was already using a homeopathic remedy and acupuncture, and that she believed Titan’s pain had almost completely gone away thanks to these therapies. When I gently pointed out that he could not walk on his affected leg and cried when it was touched, she became angry. My observations felt like an accusation to her that she wasn’t taking good care of the pet she clearly loved very much. Her reaction illustrates one aspect of a phenomenon most people think doesn’t exist in veterinary medicine: the placebo effect.

There is actually strong evidence for what is called the “caregiver placebo effect.” Owners, and even vets, frequently think what they are doing is helping veterinary patients even when they are only giving a placebo that has no direct effects at all. [Being fooled by this effect can leave our pets suffering while making us feel that we’ve helped them.](#)

Does the criticism you get from “believers” bother you? How do you deal with that?

Sure. I get some pretty vicious criticism (like [this](#)), which isn’t unusual for anyone expressing controversial opinions publicly, especially on the Internet. No one likes to be called names or vilified. But I also get a lot of positive messages, from vets and owners who have found my posts useful, and from other skeptics who feel alone and attacked when they try to raise questions about CAVM practices. That helps keep me going. I also feel that the work I do is important and empowers people to make better decisions for their patients and pets, and ultimately that matters more than my feelings.

How can people get better informed— and how can they develop better critical thinking skills?

For people who are very motivated, there are lots of ways to learn about the pitfalls and limitations of our own observations and judgment, and the use of anecdotes to make medical decisions. A few of my favorite books are:

[Don’t Believe Everything You Think: The 6 Basic Mistakes We Make in Thinking](#), by Thomas Kida.

[How We Know What Isn’t So: The Fallibility of Human Reason in Everyday Life](#), by Thomas Gilovich.

[On Being Certain: Believing You’re Right Even When You’re Not](#), by Roger Burton.

[Becoming a Critical Thinker – A Guide for the New Millennium](#), by Robert Todd Carroll.

[Why People Believe Weird Things: Pseudoscience, Superstition, and Other Confusions of Our Time](#), by Michael Shermer.

[Thinking, Fast and Slow](#), by Daniel Kahneman.

Online, I recommend the [Science-based Medicine Blog](#) and the [Skeptic’s Dictionary](#).

That said, most people don’t want an education in critical thinking, and if they don’t get one before the end of high school we are probably going to have a hard time dramatically changing how they think about science and medicine.

Instead, I recommend learning to recognize both a reliable source and identify suspect claims (for example, using this list of [Warning Signs of Quackery](#)).

Ultimately, you have to [develop a relationship of trust with a veterinarian](#) or someone with specialized expertise who can answer your questions and concerns in a clear and substantive way. Surfing through articles on the Internet will never make us our own experts in absolutely everything.

Can behavior consultants and pet owners also take an evidence-based approach to interventions with their clients and their animals? Are there pitfalls?

As with any use of evidence-based medicine in the veterinary field, the biggest challenge is the lack of high-quality evidence. Often, we have to make decisions based on weak or limited evidence or solely on our own personal experiences because there is nothing more reliable to go on. That's fine, but it means we need to recognize there's a fair bit of uncertainty in those decisions, and we shouldn't get too rigid in our views for or against specific ideas or practices in the absence of better evidence. One mark of a good veterinarian is that he or she will be explicit and open about the evidence, or lack of evidence, when making a recommendation. If you get a strong recommendation and ask for the evidence behind it and the answer is, "Well, I've always done it this way," that's not a good sign.

Despite the difficulties in creating objective measures of effect in veterinary behavioral medicine, there is a rich literature in this field, and often it will be possible to get some idea of which approaches are the most effective and which really don't help from looking at this literature. The most important thing is to be open to the possibility that even what seems obvious to us might be wrong, and if the evidence clearly shows that a particular method isn't effective, we have to be willing to take that evidence to heart and change our ways.

What's the one thing you wish you could convince everyone to believe, or to learn about CAVM?

Anecdotes are only useful for suggesting hypotheses to test, *not* for actually proving any particular idea true or false. While our personal experiences and the stories others tell us are deeply compelling psychologically, the evidence of psychology and the history of medicine is overwhelmingly conclusive that by relying on anecdotes we get it wrong at least as often as we get it right.

And, that Internet testimonials are particularly misleading. There is a bias in the posting of testimonials. People with positive experiences are more likely to share them than people with negative experiences, so they misrepresent what people are actually experiencing.

Anecdotes and testimonials can be found to support every single treatment ever invented, including those proven to be useless or even harmful. If we accept testimonials as evidence, then everything works. It's a test no treatment ever fails. Tens of thousands of years of trial-and-error and anecdote led to virtually no improvement in human health and longevity. A mere couple of centuries of relying on science instead has doubled our life expectancy, dramatically reduced death, disease, and suffering, and proven that science works better than stories.

For those interested, I have written in much more detail about why anecdotes simply don't help us evaluate medical treatments.

[Why We're Often Wrong](#)

[Testimonials Lie](#)

[The Role of Anecdotes in Science-Based Medicine](#)

[Why We Need Science: "I saw it with my own eyes" Is Not Enough](#)

[Don't Believe your Eyes \(or Your Brain\)](#)

Where do you hope to see the state of veterinary medicine in ten years?

I would like to see veterinarians be better trained as scientists and critical consumers of scientific knowledge, rather than solely as clinicians following the guidance of teachers, mentors, specialists, and organizations. Reaping the full benefits of an evidence-based approach requires that we be explicit and thoughtful in our assessment and use of scientific research evidence; that we accept the inevitable uncertainty in medicine and discuss it openly and clearly with our clients; and that we resist the temptation to fall into habits based on tradition, our early clinical experiences, or the opinion of influential individuals. If we are taught to understand the limitations of our observations and experiences and how controlled research evidence can help us compensate for these, we can be better clinicians and also enjoy more challenging and fulfilling work.

I would also like to see us develop the foundation of knowledge and the tools to practice in a more evidence-based way. The Centre for Evidence-Based Veterinary Medicine at the University of Nottingham is leading the way in discovering what information vets need in what format to practice more effectively. And the Morris Animal Foundation, Evidence-Based Veterinary Medicine Association, and other organizations are also working to create better tools and make scientific research more useful to vets and animal owners. There are a lot of exciting opportunities and developments to look forward to!

*Brennen McKenzie is the president and committee chair of the [Evidence-Based Veterinary Medicine Association](#). As well as founding the *SkeptVet* blog, he has published in numerous veterinary journals, and currently practices veterinary medicine in Northern California.*

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