

Use of Cetyl Myristoleate for Arthritis and Tendinitis in Holistic Veterinary Medical Practice

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I practice holistic medicine because I believe that using its concepts and natural compounds, I can, not only treat illnesses and acute problems, but can improve the overall health of the animal. While practicing conventional veterinary medicine, I became disillusioned with the way I was taught to treat animals.

I had many patients who responded well to conventional treatments and drugs, and they would be in good condition for two, three, even six months. However, it seemed that they would always be back in for the same problem or an even more severe one. Drugs used for treatment of conditions like arthritis seemed to pose more of a risk for potential harm with long term use, than a solution.

I attended all of the veterinary conferences I could, and after learning about the latest, greatest things in treatment and drugs, I soon discovered that there was not much of a difference between the outcomes using current methods of treatment and the outcomes achieved using the newer treatments.

In my practice, I have always seen a significant amount of arthritis, mostly in dogs, so treatments and natural compounds targeting arthritis and its manifestations have been of particular interest to me. About 90% of the arthritis I see is osteoarthritis, along with some immune-mediated problems such as lupus and rheumatoid arthritis.

In the past, I have used yucca extract with good results when used as a natural anti-inflammatory. Usually, however, a point was reached when yucca no longer produced results, even with increased dosage.

The animals were then switched to a different program using various combinations of products containing glucosamine, boswellia, white willow bark, anti-oxidants, calcium, magnesium, copper, zinc, manganese, vitamin C, and other natural anti-inflammatories, also with good results.

Like all holistic veterinarians, I try to get the animals on a truly natural diet, which also helps the animals' health, but not all owners are willing to do this.

In view of the tolerance situation that I observed with yucca, and the fact that years of using it or the glucosamine combination products, can grow to be quite expensive for owners, I was always on the lookout for something better with which to treat my

patients. I initially read about cetyl myristoleate (CM) in a JAHVMA ad, and, after receiving further information, I started using CM in the fall of 1998.

Since then, I have placed a total of 21 animals on CM, and the results have ranged from good to astounding. One of my most recent cases is a Lab, Jake, that has a one-year history of progressive stiffness and soreness. After he was given two rounds of CM, the owner called and said, "Jake ran a couple of miles with no soreness or stiffness. What should I do?" Happily, I was able to advise her that, if the dog is normal, she could stop the CM.

Typically, the owner expects improvement, but they do not expect the total improvement that they see with CM. This article will provide background on CM and report on six specific cases in which the product was used successfully, and one case where therapeutic results were not seen.

Research and Discovery of CM

CM is a fatty acid ester of myristoleic acid, a common fatty acid found in fish oils, whale oils, dairy butter, and animal fats. Myristoleic acid is a mono-unsaturated, medium chain fatty acid with a molecular weight of 450. Chemically, it is the hexadecyl ester of tetradecenoic acid (myristoleic acid).

Cetyl myristoleate was a new compound to science when discovered in 1964 by Harry W Diehl, an experienced medical researcher, who was employed at the time by the National Institute of Arthritis, Metabolism, and Digestive Diseases at the National Institutes of Health.

Mr Diehl was an accomplished researcher, having discovered an improved method of making the sugar 2-deoxy-d-ribose, which was patented by the government and subsequently used by Dr Jonas Salk as the culture medium for his polio vaccine¹.

CM was a project of personal interest for Mr Diehl, not a government sponsored effort. His motivation for researching CM is really quite interesting and altruistic.

In the late 1950's, Mr. Diehl observed his neighbor, then just 40 years old, fall ill with rheumatoid arthritis. The neighbor's knees began to swell and each week he got worse. No doctor who treated him could arrest the progress of the disease, much less offer a cure.

Over the next fifteen years, the neighbor took just about every medicine that had been discovered, but nothing worked to arrest the disease. He first became bed-ridden, then one leg had to be amputated, followed shortly by the other. Finally, he was admitted to a nursing home where he died, weighing just 86 pounds.

Mr. Diehl wrote that every time he visited this suffering soul, he wished he had something that was a cure, and those memories lingered with him, finally motivating him to start the research that led him to the discovery of CM.²

Diehl was frustrated by trying to create a "disease model" in mice, because he found that he could not induce arthritis in the mice. He wrote to Dr Fay Wood at UC Berkeley, who responded, "If you or anybody else can give mice arthritis, I want to know about it, because mice are 100% immune to arthritis."³ At that moment, Diehl's research instincts told him that what he wanted was already somewhere in those mice.

Working in his home lab, Diehl pursued his theory that there had to be something specific in the mice that prevented them from getting arthritis.⁴ He soon isolated a compound, CM, from mice that did not occur in their biological kin, rats, which can easily be given arthritis experimentally. The next step was to see if experimentally induced arthritis in rats could be blocked or cured by CM.

His research was published in the *Journal of Pharmaceutical Sciences* in March, 1994. Diehl reported that a group of normal rats were injected with CM. Then, 48 hours later, they were injected with Freund's Adjuvant to induce polyarthritis. A control group of rats were given Freund's Adjuvant only.

The rats protected by CM developed no arthritic pathological changes and grew 5.7 times faster than the control group, which did contract arthritis. Diehl's experiments showed that CM gave virtually complete protection against adjuvant-induced arthritis⁵.

CM Works for Harry Diehl

Like many older Americans, Diehl himself fell victim to osteoarthritis in his hands, heels, and knees. His heels were so painful he could hardly walk.

Diehl's doctor gave him cortisone injections, but it reached a point where cortisone was no longer advisable, and the doctor told Diehl that there was nothing else to do but take NSAID's.

At that point, he was eighty years old and

decided to make a batch of CM to try on himself, which successfully cured him of all symptoms of his arthritis.^{6,7}

Mechanism of Action

No one knows for sure what the mechanism of action of CM is. This is a familiar answer when it concerns dietary supplements, and, for that matter, many pharmaceutical compounds as well.

With one-half of the molecule coming from a fatty acid, CM shares properties of the essential fatty acids, but its effects seem to work faster and last longer against arthritis, than the EFAs.

Dr Charles Cochran has written, "Some authors and practitioners believe that cetyl myristoleate has the ability to reprogram faulty memory T-cells, thus treating the cause of arthritis [in the case of rheumatoid types of arthritis]. I have not found this to be totally correct. Cetyl myristoleate may have the ability to normalize hyper-immune responses, thus [producing] the favorable results in treating autoimmune conditions such as rheumatoid arthritis and systemic lupus erythematosus, but it seems to function more effectively as a lubricant and a powerful anti-inflammatory."⁸

Clinical Study on Rheumatoid Arthritis in Humans

A multi-center, clinical research study involving 431 patients with various forms of rheumatoid arthritis was performed in 1996 using various established measurement criteria, including joint swelling, joint pain, chest expansion, blood analysis, urinalysis, radiographic assessment, and physician and patient assessment.

The patients were divided into three groups and tested for one month. One group received CM. Another group received the same amount of CM plus glucosamine and other adjuvants. The third group received a placebo. The remarkable results showed significant improvement in 63.3% in the group using CM alone, and 87% improvement in the group using the combination of CM, glucosamine, and other adjuvants. The placebo group showed only a 14.5% improvement.⁹

Adverse Reactions

In the same study, there were no adverse reactions in 205 patients who received CM alone or in combination. None of the patients receiving CM reported CNS symptoms. Only five of 205 patients receiving CM reported gastrointestinal symptoms

(GI), while three of 226 patients receiving the placebo reported GI symptoms.¹⁰

There have been no adverse side effects in the 21 animals I have treated with CM. There has been no evidence of toxicity in any animal.

Use of Cetyl Myristoleate in Seven Animals

In November, 1998, I decided to try CM on my patients. I ordered a supply of CM11 capsules, along with the support formula 12 containing joint nutrients, anti-inflammatory compounds, and digestive aids.

I elected to use CM in accordance with the distributor's recommendations, which are:

Weight Range	# of CM Capsules Daily
up to 40 lbs	1 or 2
41 to 100 lbs	2 or 3
101 to 200 lbs	3

For animals over 60-70 pounds, I tend to recommend the three per day level, but it depends on the severity of the animal's condition. For larger animals, such as horses, six CM capsules daily for up to six weeks are recommended. Two support formula capsules are given with each CM capsule.

In general, most of the animals tolerate the CM oil and the support formula well when the capsules are opened and the contents spread on the animal's food. Animals fed once daily, receive their daily dose all at one time. For animals taking two daily feedings, the dose of CM and support formula can be divided. I have not had to give three or four courses to any small animals.

All animals treated have done well with one or two bottles. Of course, one bottle may last longer for some animals than for others. Some of the larger dogs, and some of the more severely afflicted, have taken a second bottle. I have treated an arthritic horse with CM. She was given about 150 capsules (three bottles), at the rate of six capsules daily, and her arthritis was greatly improved.

In cases where owners have allowed us or someone else to do diagnostic x-rays, where we can be sure of the diagnosis, the results have been excellent. In most of these cases, the animals are walking normally, including our tendon cases. The only ones that have not done well are the ones on which a comprehensive diagnostic workup was not done, and we were assuming that arthritis was the cause of the lameness. Nevertheless, the results from using CM surpass the owner's expectations.

Clinical Cases

Here are seven specific cases from my practice that will illustrate various conditions and the response to treatment with cetyl myristoleate:

Taffy, 1987 Golden Retriever, first seen 12-30-97, for a painful left rear leg and early urinary incontinence. Her left stifle was enlarged and painful. No radiographs were obtained. She was placed on yucca twice a day for the stifle pain and was also switched over to a natural dog food. She did well, but still had some stiffness upon rising. On 11-12-98, Taffy had become acutely lame on her left front leg the day before and was worsening.

Radiographs were taken and revealed arthritic changes in the shoulder and elbow joints. On 11-16-98, Taffy was started on CM, 1 in the morning and 2 at night, along with the joint support formula, 3 in the morning and 3 at night. On 11-20-98, the owner reported Taffy was doing great, not even stiff when first getting up in the morning. On 12-3-98, the owner reported Taffy was just fine and done with her medication.

As of 5-99, Taffy has had no further treatment for her arthritis and is still moving normally.

Cocoa, 1992 Australian Shepherd-Lab mix, first seen 3-23-98, with a history of previous trauma to hip causing deformity of the femoral head and neck, with secondary arthritis in both hips. She was placed on a natural pet food, a multi-vitamin, vitamin C, and yucca. On 4-27-98, the owner reported that the right hip seemed worse. On 5-2-98, Cocoa had inflammation along spine.

Radiographs revealed narrowed disc spaces at L5-6 and L6-7, along with worsening of right hip. Cocoa was placed on an anti-oxidant combination, a glucosamine combination product, and a boron and calcium combination along with the yucca. Cocoa seemed a bit improved but had recurrent diarrhea from medications. On 10-16-98, a magnetic pet bed was added to the regimen. On 11-24-98, Cocoa was placed on CM and joint support formula.

No further medication has been given since then, only the magnetic pet bed is still in use, and Cocoa is no longer stiff or lame as of 5-99.

Emmitt Smith, 1995 Miniature Dachshund, first seen 12-18-98, for degenerative disc disease that had been non-responsive to prednisone. He had proprioceptive deficits and partial paresis in the rear legs; overall grade II disc disease. He was given a

magnetic pet bed, phenylalanine for pain, and CM and joint support formula. He was also referred for acupuncture treatment. He also had to be given an enema due to severe constipation.

The owner did not change to natural pet food. On 12-23-98, he had decreased proprioceptive deficits and increased strength, but was still tense and painful. He was still not having bowel movements on his own, so another enema was given. On 12-28-98, the owner reported some improvement; having bowel movements on his own and resting better. On 1-4-99, the owner reported that Emmitt was doing great—very active, no pain medications for four days. On 1-18-99 and 2-18-99, Emmitt was still doing well.

As of 5-99, Emmitt has done well except for one episode of vomiting and paresis on 2-26-99.

Jake, 1990 Rottweiler, first seen on 1-6-98, for severe, non-responsive hypothyroidism. He was placed on a holistic protocol for thyroid, and yucca for stiffness. On 3-25-98, he was placed on glucosamine combination for stiffness along with yucca and vitamin C. On 5-15-98, radiographs and joint tap revealed degenerative joint disease, and an anti-oxidant combination was added to the treatment regimen.

On 12-10-98, Jake continued to have good days and bad days, with thyroid and stiffness problems. He was started on CM and joint support formula. On 12-23-98, Jake seemed less stiff according to his owner. On 12-30-98, the owner reported Jake was less stiff and more energetic. The owner picked up a second bottle of CM. On 4-16-99, there was waxing and waning of symptoms with a lack of energy.

Jake was severely lame on the left front leg, with a swollen elbow. His abdomen and liver were distended, skin and haircoat poor. Blood work revealed the thyroid level was decreased again, with an increase in muscle enzymes, cholesterol and lipase. He was started on Armour thyroid, with no further treatment for degenerative joint disease at this time.

Anna, 1994 Australian Shepherd, first seen 12-8-98, for chronic tendinitis/bursitis of one-year duration. She had been on Rimadyl, which helped, but then seemed to feel better, be active, and become lame again. Radiographs revealed no bony changes.

She had decreased weight bearing on the affected leg, toed out when standing on it, was lame at a walk, had slight pain on palpation of the elbow medially, but had no inflammation or swelling.

She was placed on devil's claw, vitamin C, and joint support formula. On 12-8-98, very little progress was noted, and the dosage of vitamin C and devil's claw was increased. On 12-21-98, she was switched to yucca instead of devil's claw. On 12-30-98, she was somewhat better and was restricting activity, but still not a lot of improvement. On 1-4-99, her diet was changed to natural fermented pet food.

On 1-18-99, she was started on CM and salmon oil along with joint support formula. On 2-16-99, the owner reported Anna was feeling her old self again, running and doing well. On 3-17-99, she had one episode of lameness after wrestling with other dogs and was normal in two days with no medication. She has been fine since, as of 5-99.

Jake, 1993 Labrador Retriever, first presented 2-24-99, with a one-year history of getting sore the day after exercise and then fine. The month prior to presentation, he was stiff and sore a few hours after exercise and the following two days. At the time of presentation, he needed help getting up after exercise.

On examination, his left rear leg was painful and stiff. Radiographs revealed a decreased range of motion of the left rear leg, hip dysplasia, and mild to moderate arthritis. Jake was placed on CM and joint support formula along with a change to natural pet food and limited exercise. The dosage was started out slowly due to gastrointestinal upset after sedation. On 3-15-99, the owner reported Jake was doing better; he limped but was improving. They were out of medication, but will pick up more.

On 4-9-99, the owner reported Jake was doing well; he ran a couple of miles with no soreness or stiffness. He was still taking medication, but they were almost out. Owner felt that Jake was 100%.

Max, 1990 Brittany Spaniel, presented 2-25-99, with a history of being diagnosed with severe hip dysplasia at Washington State University four years previously, at which time hip replacement surgery was recommended. I started Max on CM and joint support formula and natural fermented pet food.

On 3-4-99, the owner reported Max was doing excellently, moving better, and not panting nor groaning. On 3-19-99 Max was doing great! On 4-1-99, we stopped CM and joint support formula, and Max is still doing marvelous.

What's Ahead?

Animals that were started on their course of CM in the fall of 1998 are still doing well and have not had

to go back on the product since. Jake's owner was so happy with the results of CM that she put her other dog on it, and then she put herself on it, too. She also reported that she overdid physical activity on one weekend and was practically crippled. After two days of taking CM she was back to normal.

With a product offering so much benefit to animals and humans alike, with no known toxicity or side effects, there is at last something new for arthritis to add to our practice as holistic veterinarians. In my opinion, CM is an incredible product for arthritis. It has become our optimum choice for chronic tendinitis, as well as arthritis.

I also use magnetic pet beds for hip dysplasia and secondary arthritis in conjunction with CM, but have not recommended magnetic beds for chronic tendinitis cases.

I try to give my owners an overview of the different programs they can put their pets on, and most of them select the CM approach because they realize that in the long run it is much less expensive and gives long-term improvement.

I look forward to even more long-term successes using CM and am trying it on different cases, including degenerative myelopathy in dogs and chronic tendon problems in horses.

This is a product that could be a life saver for many suffering animals. With no known side effects or toxicity associated with CM, it is not just another drug to help ease the pain of arthritis and other musculoskeletal disorders.

It can prevent the formation of arthritis and improve the overall health of the animal. Furthermore, since the animals do not need to be continually using CM to deal with the arthritis, the animals are happier, and so are the owners.

Footnotes:

1. Gorman, Pat, *NIH News*, National Institutes of Health, Bethesda, MD, May 21, 1974, pg 3
2. Diehl, Harry W, unpublished paper, Rockville, MD, March, 1974
3. *Nutrition and Healing*, Newsletter by Dr Jonathan Wright, Aug, 1996, pg 5
4. Cochran, Dr Charles, *TESLA: A Journal of Modern Science*, 3rd Qtr, 1997, pg 1
5. Diehl, H and May, E, Cetyl Myristoleate Isolated from Swiss Albino Mice: An Apparent Protective Agent against Adjuvant Arthritis in Rats, *Journal of Pharmaceutical Sciences*, March, 1994, pg 296
6. Wright, Jonathan, Op Cit, pg 6
7. Movius, Edward G, MD, FACP, Gaithersburg, MD, personal letter, Dec, 1991

8. Cochran, C, Dr Charles Cochran Discusses Arthritis and Cetyl Myristoleate Healing, *Wisdom Publications*, 2067 Broadway, New York, NY 10023, 1996, pg 19
9. Siemandi, H, The Effect of cis-9-Cetyl Myristoleate and Adjunctive Therapy on Arthritis and Auto-immune Disease, A Randomized Trial, *The Townsend Letter for Doctors and Patients*, pgs 59-63, Aug-Sep, 1997
10. Ibid, pg 61
11. Myristin® by EHP Products, Inc, PO Box 1306, Ashland, KY 41105
12. Myrist-Aid® by EHP Products, Inc

Dr Debra Tibbits is a 1986 graduate of The Ohio State University and started practicing holistic veterinary medicine in 1993. She practiced in Montana, and now practices in East Wenatchee, WA.

Her clinic is called Coffee & Critters Natural Veterinarian Service (she has a drive-thru espresso service attached), and she sees companion animals ranging from exotics to birds to small ruminants to dogs and cats to horses.

Her main modalities are nutrition, homeopathy, and some western herbs. She has completed Dr. Pitcairn's homeopathy course.