



DaVinci®

*Laboratories
of Vermont*

Innovative by nature

ENZ-FLAME

Key to Supporting a Healthy
Inflammatory Response*

Be Strong™



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Dear Practitioner,

It's time to get comfortable.

Heading into the rainy months, complaints about bodily discomfort abound.

A healthy inflammatory response is directly related to perceived comfort—and perception is everything when there's comfort involved.

Inflammation acts as an alert. Its effects on joints, muscles, internal organs and even skin often appear as symptoms of discomfort like fatigue; many people remain unaware of the alert because the response does not always create sensation.

Without proper access to information about solutions, patients continue to participate in behaviors and nutritional habits that allow discomfort to occur or even worsen. Allowing deterioration of joints, muscles, or even organs as a result of either neglect or overuse can cause even further deterioration.

Stop the cycle now.

Natural Solutions

*Enz-Flame offers comprehensive support through pairing enzymes with the power of cetyl myristoleate, an immune system modulator and a nutrient that often flies under the radar.**

Bring it to the surface and give patients an opportunity their gym buddies didn't see coming. They won't ever use the phrase "no pain, no gain" again.

To your patients' and your practices' good health,

Dom Orlandi

President

DaVinci® Laboratories of Vermont

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*Be Strong*TM



Introduction

Finding overall comfort and supporting healthy inflammation modulation is not an easy path to walk. It's winding and often uncharted--and many people are walking it alone.

We can see the markers of inflammation in every area of health, but in the joint comfort category, the facts are particularly staggering:

- An estimated 50 million adults suffer from doctor-diagnosed arthritis, with limited activity resulting in 21 million people. There are strong projections for this number's growth—an expected increase to 67 percent of U.S. adults by 2030.
- Lifetime risk for knee osteoarthritis increases with weight and rises to 60 percent among people who are obese (nearly 34 percent of American adults, according to the CDC).
- An estimated 1.5 million Americans suffer from the pain associated with the autoimmune disorder Rheumatoid Arthritis.
- Between 1999 and 2009, the percentage of men over 18 years of age who met the 2008 federal aerobic activity and muscle-strengthening guidelines increased from 19 percent to 22 percent.
- In 2009, 47 percent of adults met the Physical Activity Guidelines for aerobic activity.
- In 2009, one in five adults 18–44 years and 42 percent of adults 45–64 years reported joint discomfort within the last 30 days.

Navigating the support needed for all of the different joints, muscles and organs in the body can be difficult. Some issues with inflammatory response are temporary, while others are persistent. Often, physically active people over-exert themselves, causing discomfort and limited mobility later (either short or long-term), while relatively inactive people inadvertently cause limited mobility through neglect.

Other causes vary-- from genetics to activity. The Center for Disease Control notes that “recommendations from health care providers are the most influential factor in convincing people to be physically active” and to take courses in self-management.

Enter Healthy Alternatives

Ideally, those recommendations would be all that patients need, but as we know, many doctors still take a pharmaceutical approach to dealing with their patients' issues. In fact, the 2008 National Ambulatory Medical Care Survey data show us that 74 percent of physician's office visits involve drug therapy.

Further, the National Center for Health Statistic's 2007-2008 report notes that over the last 10 years, the percentage of Americans who took at least one prescription drug in the past month increased from 44 to 48 percent, while the use of two or more drugs increased from 25 to 31 percent.

This is fueled by the massive profits—and even bigger marketing budgets—of the pharmaceutical industry. Spending for prescription drugs in the United States was \$234.1 billion in 2008, which was more than double what was spent in 1999.

Aside from the excessive burden of the cost of health care in the United States, this type of trend has far-reaching consequences, not the least of which is the concern that the remedy may present more issues than the ailment.

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The difference your patients are seeking

Even as prescription drug use continues to rise, there is a growing movement toward natural, alternative and non-prescription solutions for every day health.

Harvard Medical School has estimated that 50 percent of people in the U.S. between the ages of 35 and 49 years have used at least one alternative therapy, while the National Center for Health Statistics confirms that in 2007, almost 4 out of 10 adults (38.3%) had used some type of complementary and alternative medicine (CAM) in the past 12 months.

The 2007 National Health Interview Survey (NHIS) alerts us to the fact that 38.1 million adults in the United States made visits to CAM practitioners during the last year, spending \$33.9 billion out of pocket on visits and purchases of CAM products, classes, and materials.

CAM was most often used to address back pain or back problems, neck pain or neck problems, and joint pain or stiffness, all of which can be results of a negatively impacted inflammatory response, be it chronic or short-term.

What's next?

Increased clinical research tells us that there are a variety of nutrients to support joint and muscle health and normal inflammatory responses, specifically supplements designed to address general aches and pains related to physical activity and over-exertion. **Enz-Flame by DaVinci® Laboratories is at the leading edge of this movement because of its unique combination of ingredients, which includes cetyl myristoleate, the medium chain fatty ester of myristoleic acid.**

Of course, we recognize that a variety of lifestyle changes may be helpful. At DaVinci® Laboratories, we recommend creating a total wellness package to support your patient's joint, muscle and overall health.* The best hope for compliance is a patient's own positive perception of his or her results.

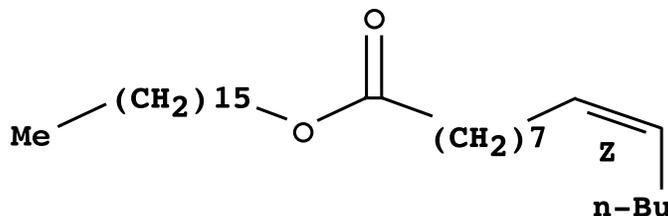
Discover Enz-Flame's comprehensive formula to support general joint health and comfort, workout recovery, healthy alkaline/acid balance, mobility and flexibility, and learn what you need to know to decide if Enz-Flame is the right formula for your patients who experience aches and pains from physical activity or over-exertion.*

Taking a Comprehensive Approach:

Here, we'll introduce you to the two main components of Enz-Flame: CMO and an enzyme blend that work together to support your patients' well being.*

CMO: An overview

Cetyl myristoleate, or 9-Tetradecenoic acid hexadecyl ester, is an omega 5 known for its qualities of lubrication. This molecule, shown below, is present in nature, but most often produced through a process of esterification. Both substances involved (cetyl alcohol and myristoleic acid) are natural surfactants.



CMO is also known to support immune system function and a healthy inflammatory response in the body.*

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What are the health benefits of CMO?

The inflammatory response is not caused by tissue injury itself, but instead by the chemical agents known as mediators of inflammation that are either derived from cells or formed from blood plasma proteins' accumulation in the area, such as C-reactive protein and local messengers like eicosanoids.

Prostaglandins and leukotrienes are largely responsible for the type of aches and pains we feel after over-exertion; lysosomal enzymes released from leukocytes are also to blame. Because CMO is known as an immune system modulator, it may work through helping the body manage the production of these compounds, supporting a healthy white blood cell count and therefore, a healthy inflammatory response.*

Cetylated fatty acids have also been studied for their effects on mobility. A study published in the Journal of Rheumatology concluded that, compared to placebo, these fatty acids provided an improvement in knee range of motion and overall function in patients with osteoarthritis. (Barathur et al, 2002)

What does the research show?

Osteoarthritis

In 1997, Humberto Siemandi, M.D., Ph.D, conducted a multicenter, double blind, placebo-controlled clinical trial. The patient group of 382 people with osteo-, rheumatoid and psoriatic arthritis was selected to assess CMO against several rheumatic conditions. Group 1 used 90g/day CMO complex containing 12 percent CMO, while another group took a placebo. "Outcome was measured by patient response, physician assessment, joint pain, swelling scores and several measures of range of motion. Patients in the treated group showed significant improvement in symptoms, especially after 60 days. Patient and physician reports were similar: 63 percent for the CMO group and 14 percent for the placebo group." (Zimmerman)

Rheumatoid arthritis

Harry Diehl, who discovered CMO in 1962, noted that years of "chemical sleuthing" paid off when he noticed an unknown compound on chromatography of methylene chloride. Diehl went on to publish "Cetyl Myristoleate Isolated from Swiss Albino Mice: An Apparent Protective Agent against Adjuvant Arthritis in Rats" in the Journal of Pharmaceutical Sciences, which described cetyl myristoleate's circulation in the blood of mice, and how, when mice are injected with an adjuvant designed to trigger arthritis, this substance appears to protect them from developing the disease. Diehl then tried to mimic that substance, administering it to rats to find out if it had the same effects. It showed protective properties dependent on dose and injection site. (Diehl, 1994)

Immune support

Though the mechanism of action is not entirely clear, there are several schools of belief about CMO's potential effect on supporting immune system health.* One possibility is that because it is a fatty ester, cetyl myristoleate helps the body manipulate prostaglandins.*

Another possibility is that CMO supports the lubrication of cell membranes (which can become damaged and hard due to joint wear and tear) and supports the body's production of beneficial prostaglandins (PGE1 & PGE3), which have a positive effect on those enzymes that support comfort.*

Inflammation

Exercise-induced inflammation occurs when leukocytes or monocytes experience changes in circulating concentrations, tissue infiltration and/or shifts in leukocyte function. Neutrophils are the leukocyte type most responsive to the stimuli exercise produces. Large accumulations of these inflammatory cells are found in skeletal muscle fibers that are damaged by exercise. Similarly, large accumulations of macrophages peak three to 14 days after strenuous exercise.

Non-exercise induced inflammation can occur for a variety of reasons, the most common being toxins, viruses, infections and tissue injury.

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It is important to note that a lack of pain does not indicate an absence of inflammation. To be clear, inflammation is the localized protective reaction to an immune system threat; an injury or infection enacts the immune cells to man their battle stations by stimulating the mast cells' release of cytokines and histamine, which sound the horn. Macrophages begin an attack even before neutrophils and lymphocytes arrive.

But sometimes, those immune cells are wrong. Sometimes they get the wrong directions or show up at a location and don't quit, even when the battle is long over. This refusal to abandon post causes chronic inflammation. While acute inflammation is usually felt by the body as pain, chronic inflammation is often called "silent," making it especially troublesome.

Any inflammation, though, is ultimately a result of white blood cell response. CMO supports a normal white blood cell count, thereby supporting a healthy inflammatory response.*

A Systemic Enzyme Support Blend

Enz-Flame includes a proprietary systemic enzyme blend that is also designed to promote comfort through its support of a healthy inflammatory response.*

Because proteolytic enzymes initiate chemical reactions in the body and assist in protein breakdown, those included in Enz-Flame support the balance of proteins in your body that regulate the inflammatory response.* Certain proteins suppress inflammation while others incite or exacerbate it. Under normal circumstances, the body naturally balances those proteins to exact the immune response necessary without causing pain.

As a supplement, proteolytic enzymes are meant to maintain the normal circumstances and functions of immune cells by supporting the balance of proteins that is required for good health.* Another benefit of including systemic enzymes in the Enz-Flame formula is that they work with CMO to support the immune response and proper nutrient absorption and utilization.*

Enzymes

Q. What is protease?

A. A protease (also called a peptidase or proteinase) is any enzyme that begins the catabolic action of a protein by hydrolysis of peptide bonds (the bonds that link together amino acids in the protein's polypeptide chain). Some proteases include papain, bromelain and pepsin.

Q. Why do enzymes support a healthy inflammatory response?*

A. Systemic enzymes support comfort through their ability to support the circulatory system, meaning joints, tissues and other body parts see more beneficial nutrient delivery and waste elimination.* Digestive enzymes like protease also serve as pancreatic enzymes, thereby allowing pancreatic enzymes freedom to support other bodily processes, like a healthy inflammatory response.* Most importantly, proteolytic enzymes may contribute to the body's regulation of healthy prostaglandins and neuropeptides, both of which are involved with the inflammatory response.*

Q. Why combine enzymes with CMO?

A. CMO is an omega 5 oil and a fatty ester, meaning it cannot be digested in a system with insufficient or impaired fat or protein digestion. Adding an enzyme (like protease, lipase or amylase) supports protein degradation and overall healthy digestion, which supports absorption and utilization of formula ingredients.*

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Pancreatin is a digestive enzyme mixture that includes lipase, amylase and protease. Because CMO is a fatty ester, lipase, an enzyme that supports lipid degradation, may be beneficial in supporting normal absorption.* Further, protease, as described above, supports the body's balance of markers like C-reactive protein, interleukins and cytokines.*

Bromelain is an enzyme extracted from pineapple stems. It contains protein-digesting enzymes called sulfhydryl proteases. In supplementation, it supports the healing process and a healthy inflammatory response by supporting proper neutrophil migration to the site.* It also supports normal blood coagulation.*

Papain is a cysteine protease enzyme found in papaya. Papain supports the digestion of proteins.* It also supports a healthy inflammatory response.* By breaking down proteins into amino acids called peptides, papain supports the simple assimilation and use of protein in the body.* As a digestive enzyme, papain supports nutrient absorption and immune system health.*

Pepsin, a proteolytic digestive enzyme, was the first animal enzyme discovered and is one of three principle enzymes known for protein degradation. Pepsin, like papain, supports the breakdown of proteins into amino acid peptides, thereby supporting a healthy digestive system and normal immune and inflammatory responses.*

Supplement Facts

Amount Per Serving	
Calories	35
Total Carbohydrates	8 g
Sugars	1 g
Dietary Fiber	2 g
Vitamin C	1.5 mg
Cetyl Myristoleate (CMO) Complex	1,000 mg
Proprietary Proteolytic Enzyme Blend	930 mg
Containing Pancreatin, Bromelain, Papain, Pepsin, Protease	
DMG HCl	250 mg
Curcumin (Curcuma longa) Root Extract	200 mg
yielding Curcuminoids	190 mg
Boswellia serrata Gum	200 mg
yielding Boswellic Acid	130 mg
Ginger (Zingiber officinale) Root Extract	50 mg
yielding Gingerols	2.5 mg
Quercetin (as Quercetin Dihydrate)	75 mg
Rutin	75 mg
Luteolin (from Perilla Seed Extract)	8 mg
Cayenne (Capsicum annum) Pepper	5 mg
Stevia Leaf Extract	150 mg

Other ingredients: orange powder, digestion resistant maltodextrin, citric acid, natural orange flavor, silicon dioxide.

Suggested Use

As a dietary supplement, mix 1 scoop (9 g) in 8-10 oz of water and take daily.

Warning: Do not take this product if you are pregnant or nursing, on anti-coagulants/ anti-platelet medications, have gall stones or gall bladder disease.

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Supporting Immune System Health and Overall Comfort with Enz-Flame*

Enz-Flame is a comprehensive product designed to support overall comfort (including that of the joints: neck, shoulders, knee and extremities), mobility, range of motion, flexibility, cartilage health, and workout recovery.* DaVinci® Laboratories has created a formula that includes several well-researched and well-known ingredients to support comfort through supporting the body's natural inflammation response.* It is not only the enzyme blend and the inclusion of CMO that make Enz-Flame unique; its other ingredients are also contributors to its enormous success as a supplement for supporting the healing process and overall comfort*:

Because recent research has demonstrated a large percentage of PGE2 (an inflammatory marker) and other similar biochemicals in the body come from a free-radical related pathway, the most comprehensive product for the support of a normal inflammatory response should feature powerful antioxidants. Enz-Flame's other ingredients feature flavonoids and antioxidants that support neutralizing of free radicals, and therefore may support the balance of such markers as cyclooxygenase 1 and 2, interleukin-1, isoprostanes, iNOS and nNOS, NF-kappa-B and TNF-alpha.*

DMG HCl offers a unique immune system support element to Enz-Flame.* DMG is a methyl donor and supports the production of hormones, antibodies, nucleic acids and other substances the body needs which can contribute to the support of detoxification processes.* DMG supports joint health through immune system modulation, circulation, oxygen utilization and antioxidant protection.*

Cayenne pepper, also known as chili pepper or red pepper, is technically a tropical berry from the Americas. It contains capsaicin, a substance known to support comfort through interacting with sensory neurons and neurotransmitters like the chemical mediator of pain, known as substance P.* Patients will be most likely associate capsaicin with the common burning sensation of a pepper—in offering support for comfort, this association can be helpful.*

Rutin is a flavonoid glycoside found in buckwheat, asparagus, several trees, berries and other fruits. It is known as a powerful antioxidant, and included in Enz-Flame to support a healthy inflammatory response and capillary strength.*

Quercetin, also a flavonoid derived from fruits, vegetables, grains and leaves, acts as an antioxidant.* Found in large amounts in green and black teas, quercetin is known to support a healthy inflammatory response through supporting histamine modulation, and is often cited for its potential to support normal prostaglandin levels and mast cell regulation.*

Curcumin is an herb that has been used for centuries in Asian cooking as an ingredient in curry. Curcumin is an antioxidant that works synergistically with boswellia to support the body's ability to maintain normal leukotriene and prostaglandin levels.* Further, it appears to support healthy hepatic functions, supporting the proper elimination of toxins and recycling of nutrients through the detoxification process.*

Boswellic Acid from *Boswellia serrata* has been associated with improved joint and overall comfort through maintenance of proper prostaglandin levels, provision of antioxidant protection and support of the immune system.* Because *Boswellia* addresses cytokines and prostaglandins, it also supports vascular health and capillary strength.*

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Ginger is a widely-used herb that provides many constituents believed to help the body support its own regulation of those prostaglandins and enzymes (like cyclooxygenase) metabolized by arachidonic acid that contribute to discomfort.*

Luteolin is a powerful antioxidant flavonoid that has been shown to support the body's ability to manage leukotrienes and the COX enzyme, as well as help the body manage prostaglandin-E2 and scavenge reactive oxygen species.* Luteolin is derived from perilla seed, popular for its support of normal microbial levels.* This can support a proper immune system response to foreign invaders and allow luteolin to act as a histamine modulator, supporting the normal inflammatory response.*

Stevia Leaf Extract has been used by herbalists in Paraguay and Brazil for hundreds of years. It has a negligible effect on blood glucose, and may even support glucose tolerance.* Therefore, it is also attractive as a natural sweetener to those on carbohydrate-controlled diets.

Enz-Flame: An uncommon response to a common concern

DaVinci® Laboratories' Enz-Flame is the most advanced formula on the market today for optimal joint and inflammatory response support.*

This comprehensive formula has been designed to support muscle health, to maintain normal lubrication in the joints and to address aches and pains associated with over-exertion and strenuous physical activity.* Enz-Flame also supports the body's ability to maintain a normal inflammatory response through supporting normal protein balance.* As a combination of CMO and enzymes, Enz-Flame provides your patients with an ideal option for serious support.*

Life is better when you're comfortable.

So it makes sense that those looking for support for their body's comfort-- especially that caused by over-exertion--line up for the right solution.* But if they won't swallow it, it can't help. That's why Enz-Flame is formulated as a convenient powder that mixes easily into any non-carbonated beverage or other functional food powder.

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About DaVinci Laboratories

For 39 years, DaVinci® Laboratories has developed and produced leading edge, high quality supplements exclusively for health care professionals. DaVinci® Laboratories is a division of FoodScience® Corporation which provides the highest quality formulations in the nutritional supplement industry for both human and animal needs.

More than 100 FoodScience® Corporation employees are dedicated to an unmatched commitment of quality and service for every product produced. World-class facilities allow the company to reach the diverse needs of our unique customer base quickly and efficiently. An on-staff Ph.D. biochemist ensures that a high level of supervision goes into the production process of nearly 200 products that meet rigorous worldwide standards. The flexible facilities also allow for custom formulations and private labeling for those customers who wish to market their own brand of natural products.

DaVinci Research

DaVinci's® research focuses on the complex relationships that exist among nutrients and the latest advancements in nutrition therapies to develop and produce some of the most significant products available to holistic practitioners. DaVinci® Laboratories' extensive research into the exciting properties of N,N-Dimethylglycine (DMG) has been unparalleled. The company has been awarded four patents for DMG's beneficial effect in the areas of immune response and cell support. DaVinci® Laboratories' Research and Development Department is under the direction of a Ph.D. nutritional biochemist.

DaVinci Specialty Formulations

Ongoing research and development at DaVinci® Laboratories has resulted in the most exclusive line of specialty products, some of which include: pure N,N-Dimethylglycine (Gluconic® DMG); the most complete high potency multiple vitamin/mineral formulas available (Daily Best™, Kid's Mighty Vites™, Omni™, Omni Jr™, Spectra™, Spectra™ Man, Spectra™ Senior, Spectra™ Woman, Spectra™ Multi Age, Ultimate Prenatal™); and unique glycosaminoglycan products (Cartilage+™, Disc-Discovery®, Perna® and Perna® Plus). DaVinci was also the first nutritional supplement company in the United States to introduce Evening Primrose Oil (Gamma-Lin™) to health practitioners in 1980 as well as the first company to offer doctors an efficient and accurate protocol for evaluating the quality of Oil of Evening Primrose.

University of Southern California Medical School, Los Angeles; Medical University of South Carolina, Charleston; Institute For Child Behavior Research, San Diego; San Diego State University; Northern Kentucky University, Highland Heights; Florida Medical School, Tampa; University of Bridgeport, Bridgeport, Connecticut; Clemson University College of Sciences, Clemson, South Carolina.

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