

THE  
canine  
LONGEVITY  
CODE

SUPPLEMENTS



BIOHACKING FOR DOGS

# **The Canine Longevity Code**

**The Top 6 Supplements to Boost Your Dog's Health and Longevity**

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**The Biohacking Veterinarian**

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## Preface

My coach was walking up to me. He never walks up to me right before a match, what is this? Here we are in Las Vegas about 15-20 minutes before my finals match at the most prestigious competition in Gi Jiu Jitsu for older competitors, Master Worlds. To say my anxiety was high is an understatement, I am one match away from being a World Champion and my coach is doing something he does not normally do.

“This guy fights just like you. He is calm, cool, calculated, and very methodical.”, he said with the same calmness and hardness he usually displays. “This match is going to come down to two things, who is more physically fit and who wants it more. I just need to make sure that you want this more than him!” He never even questioned my fitness, he knows how I train, he put me through the wringer to compete, and training with fellow jiu jitsu teammates and MMA fighters half my age.

I won that match by referee's decision. I admit I had a couple tears hugging my coach at the end of that match. One of the greatest moments in my competitive career.

So why do I tell this story at the beginning of an ebook on dog supplements? This is where it all began. In order to compete at my age (51 at the time), at the highest levels, my body and mind need to be at their peak. I do a lot of biohacking for myself in order to achieve peak performance and wellness.

As a holistic veterinarian who regularly performs acupuncture and chiropractic treatments on performance dogs to maintain their peak performance and comfort, I have noticed a need for these dogs to undergo biohacking techniques. Also a significant portion of my practice involves older dogs with arthritis and various other age-related ailments. These dogs could benefit from biohacking techniques to prevent or alleviate these conditions.

My own border collie trains in agility and this dog is the love of my life, another one of my children. I want her to have the best peak performance and for her to live a long, happy, healthy life, so biohacking techniques for her as well.

**I want all dogs to experience life with biohacking techniques. Any owner or caretaker that wants the best for their dog that wants to optimize their health and well being needs this information. You need this information!**

I hope you enjoy this ebook *The Canine Longevity Code: The Top 6 Supplements to Boost Your Dog's Health and Longevity*. Follow us on Facebook and Instagram and continue to visit our website <https://biohackingfordogs.com> for more information on Biohacking For Dogs.

For personalized guidance on choosing the right supplements and biohacking strategies for your dog, visit <https://biohackingfordogs.com/product-category/consultations/> to schedule a virtual consultation with Dr. Dan.

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For more detailed medical advice, diagnosis, or treatment, please schedule an in-person visit with your local veterinarian. Your dog's health and well-being are of utmost importance, and professional veterinary care should always be your primary resource.

Thank you for taking proactive steps towards enhancing your dog's health and longevity. Together, we can ensure our beloved pets live longer, healthier, and more vibrant lives.

## Introduction

Biohacking – the modern art of optimizing health through nutrition and natural health methods – is not solely reserved for humans. Your dog can also benefit from various health strategies and protocols to live a happier, healthier, longer life.

By implementing various smart lifestyle and dietary choices, and most importantly, introducing the right supplements, you can help manage your dog's inflammation levels, support joint health, boost cognitive function, provide more energy, and much more.

It's for these reasons that I'm a huge fan of the use of specific supplements and the powerful effects they have on enhancing the health and longevity of our family pets. As a holistic veterinarian, I have witnessed first-hand the transformative effects that proper supplementation can have on dogs of all ages, breeds, and sizes. It's incredible to see.

This e-book has been created to provide you with a clear understanding of the top six essential supplements that can potentially transform your dog's health and wellbeing. These supplements have been chosen based on extensive scientific research – and proven clinical success.

These natural products are not just beneficial, but also transformative in nature, offering your furry friend a chance to lead a healthier, more vibrant life. By incorporating these specific supplements into your dog's daily routine, you're taking a proactive approach as a caring, responsible owner and vastly increasing their chances of a healthier life.

We will begin with fish oil – a popular supplement for humans – and we'll underline why its rich content of omega-3 fatty acids are crucial for reducing inflammation and supporting the cognitive health of your pet.

Moving through each supplement in the upcoming chapters, I'll provide the most important information on each product, along with practical advice on how to safely and effectively incorporate these supplements into your dog's daily routine.

Thank you for trusting me to guide you on this journey to enhance your dog's quality of life through the power of biohacking. Let's begin this exciting adventure together, ensuring our furry friends not only live longer but thrive as they age.

## Chapter 1

# Fish Oil – The Ultimate Biohacking Supplement for Your Dog



## **Fish Oil: The Ultimate Biohacking Supplement for Your Dog**

Imagine coming across a supplement that enhances nearly every facet of your dog's well-being—from promoting a lustrous coat and easing joint discomfort to strengthening the heart and sharpening the mind. Fish oil, long celebrated in human health circles, is that very supplement. It has crossed into pet care with impressive results.

When I first started using fish oil supplements for my own dogs, I was amazed at the difference it made in their overall health. My border collie, Meme, always full of energy and enthusiasm, began to show signs of aging. She developed difficulty in getting up and her mind was not as sharp. After consulting with fellow veterinarians and doing extensive research, I decided to introduce fish oil into her diet.

Within a few weeks, the changes were remarkable. She would pop right up from laying down and her coat was shinier and more healthy looking. It wasn't just her physical appearance that improved; she seemed more energetic and playful, almost like her younger self. This personal experience solidified my belief in the power of fish oil, leading me to recommend it to countless clients and see similar transformative results in their dogs.

As a holistic approach to looking after the health of our pets, biohacking involves optimizing their wellbeing through strategic nutritional interventions. When done properly, such natural approaches can potentially prevent costly medical solutions or needless surgeries further down the line.

Fish oil is a cornerstone of this biohacking approach. This is primarily down to the power of omega-3 fatty acids. These fatty acids, particularly Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA), are essential nutrients which are key players in maintaining and enhancing bodily functions well beyond basic nutritional needs. This can propel your dog's health to optimal levels.

My friend John had a dog named Bo, a golden retriever who was about 10 years old. Like many dogs of his breed and age, Bo had developed a bit of arthritis in his hips. John was looking for some relief for Bo, who was noticeably stiff, especially in the mornings. Bo was already on a regimen of joint support supplements, including green-lipped mussel, chondroitin sulfate, glucosamine, and collagen. Despite these efforts, Bo's stiffness persisted, and John wanted to make him more comfortable without resorting to anti-inflammatories just yet.

Seeking advice, John came to me. After hearing about Bo's situation, I asked him, "Have you tried fish oil?"

John replied, "Oh yeah, he's already on fish oil."

I followed up, "Is he on enough fish oil?"

John looked puzzled. "What do you mean by that? I'm giving him the dosage on the label."

I explained, "The label dosage is often a recommendation for general wellness and health and might not be sufficient for addressing inflammation like arthritis. Let's adjust the dosage and see how Bo does on that."

We calculated the appropriate dosage based on Bo's weight and specific needs, ensuring he received an optimal amount of EPA and DHA, the active components in fish oil that help reduce inflammation and improve joint health.

A few months later, I ran into John and asked, "Hey, how's Bo doing?"

John's face lit up with a smile. "He's doing great! That adjustment hit the target. Bo is moving much better in the mornings."

He continued, "And by the way, he normally has some pretty bad allergies. I have to say his skin is not itchy and flaky, and his coat is looking really good right now. It usually looks terrible this time of year. Come to think of it, I haven't had to give him an allergy shot yet!"

I nodded, pleased with the outcome. "Yeah, fish oil is powerful stuff when you get the dosage right."

The improvement in Bo's condition was evident. Not only had his joint stiffness reduced significantly, but his skin and coat health had also improved dramatically. The increased dosage of fish oil had provided multiple benefits.

## **Enhanced Skin and Coat Health**

A shiny coat is one of the first signs of a healthy dog. This is one of the upsides of supplementing with omega-3 fish oil. The EPA and DHA elements enhance cell membrane function across the body, including skin cells. This leads to improved moisture retention, reduced itchiness, and a visible sheen in your dog's coat.

Owners often notice their dogs have less dandruff, they scratch less often, and develop a glossy coat, which are all clear signs of healthy skin and effective nutritional uptake.

## **Supporting Joint Health and Mobility**

Arthritis in dogs is a major issue and can negatively affect both the quality and length of your pet's life. At the root of arthritis, and virtually all chronic conditions, is inflammation. The beauty of EPA and DHA within fish oil is that they have potent anti-inflammatory properties which play a crucial role in joint care. These fatty acids help reduce the production of inflammatory compounds that can degrade joint cartilage and exacerbate pain, thereby improving mobility and overall quality of life for dogs with joint issues.



## Optimal Selection and Dosage

Let's be clear, not all fish oil supplements are created equal. Selecting a high-quality product and determining the right dosage are crucial to avoid issues like greasy fur or gastrointestinal upset. Look for products with clear labelling of EPA and DHA content – and select those tested by third parties to ensure purity and potency.

For general health, it is recommended to give your dog a dosage of 20-25 mg per pound of bodyweight. However, if your dog is experiencing inflammation or has medical issues such as allergies, it is important to calculate the correct dose using their metabolic weight.

\* (According to a research study conducted by Colorado State University, many dog owners have been underdosing their dogs). To calculate the correct dosage, you need to know your dog's metabolic weight, which is their weight in kilograms (kg) taken to the  $\frac{3}{4}$  power. Then, multiply their metabolic weight by 310 mg.

Example Dosing Calculation:

For a 30-pound dog, calculate the metabolic weight (MW) and multiply by the recommended amount of EPA and DHA:

- Convert weight to kilograms: 30 lbs = 13.64 kg.
- Calculate MW:  $13.64\text{kg} \times 0.75 = 7.10\text{kg}$
- Determine EPA and DHA needs:  $7.10\text{ kg} \times 310\text{ mg} = 2200\text{ mg}$ .

## Integrating Fish Oil in Your Dog's Diet

When introducing fish oil into your dog's diet, start with a low dose to assess tolerance and then adjust based on their response. For joint health or skin conditions, precise dosing is guided by the dog's metabolic weight, with adjustments made gradually to reach the optimal level without overwhelming the system. Calculate the optimal dose, and then, starting with a quarter of this dose, gradually increase a quarter at a time, to the full amount over three more weeks to ensure good tolerance. If at any time the dog has loose stools or other gastrointestinal symptoms then back off and try again. Some dogs will not be able to attain the maximum dosage.

By incorporating fish oil into your dog's daily regimen, you are not just supplementing their diet—you are enhancing their entire biological system. High-quality fish oil supports not only the visible aspects of health like skin and coat but also the internal workings, such as joint health and cardiovascular function.

This holistic enhancement is the essence of biohacking: optimising your dog's biological processes for a longer, healthier life. Fish oil is much more than a supplement; it's a key to unlocking your dog's vitality and well-being.

## Chapter 2

### Collagen - Joint Health and the Power of Type II



## Collagen - Joint Health and the Power of Type II

Joint health is a crucial aspect of your dog's overall well-being, especially as they get older. Collagen, particularly undenatured type II collagen, plays a pivotal role in maintaining and enhancing the health of your dog's joints and connective tissue like tendons and ligaments. This protein, which is abundant in connective tissues, is essential for the elasticity and strength of joints.

I do a lot of work on performance dogs, and one day, Skyler, a 5-year-old miniature Aussie that competes in agility, came in for a consultation. Skyler's human companion, Sally, explained that they had recently participated in an agility trial. Their first run was perfect, but during the second run, Skyler started refusing jumps. Concerned, Sally pulled him off the course and decided to let him rest.

The next day, when Skyler came out of his crate, he was limping slightly on his left front leg. Sally immediately sought help from a veterinarian who happened to be at the trial. The vet diagnosed a possible soft tissue injury in Skyler's wrist, noting that it was very mild. They advised Sally to rest Skyler for a few days and to consult their regular vet if the limping persisted.

A week later, although Skyler had shown some improvement, he still wasn't quite right. When Sally brought him to class, he continued to refuse jumps. Realizing that something was still off, Sally decided to bring Skyler to me for a thorough examination.

Upon examining Skyler, I noticed issues with the accessory carpal bone in his wrist. The ligaments around the accessory carpal were a bit sore and tender, and extending the wrist caused Skyler some discomfort. I diagnosed a soft tissue strain, very similar to what the veterinarian at the agility trial had diagnosed. I explained to Sally that Skyler would need a few more weeks of rest with no agility, no running, no jumping, and no stairs to allow the ligaments and tendons to heal properly.

After discussing Skyler's condition, we talked about the next steps for his recovery. In addition to rest and some rehabilitation exercises, I suggested using wraps for Skyler during practice sessions to provide extra support to his wrist. Additionally, I recommended supplementing his diet with collagen to support the healing of his ligaments and tendons.

A few months later, Skyler came in for a routine checkup. I was eager to hear about his progress, so I asked Sally, "Hey, how's it going with the agility? Any lameness? Is he still refusing jumps?"

Sally's face lit up with excitement. "No, not at all! In fact, the other day, I had even forgotten to put on his wraps, and there was no lameness whatsoever after class. I didn't even realize he wasn't wearing them until most of the way through!"

I was thrilled to hear the good news. It was clear that Skyler's wrist had healed well and that the collagen supplement had been beneficial. Sally then mentioned another observation, "I've had to cut Skyler's nails much more frequently now. Is there any reason why?"

"Yes, that's a side effect of the collagen," I explained. "Collagen promotes healthy growth not just in repair of ligaments and tendons, but also in nails and hair. It's a sign that his body is responding well to the supplement."

Seeing Skyler happy and active again, and knowing that he was back to enjoying his agility training without any issues, was incredibly rewarding. It's moments like these that highlight the importance of a comprehensive approach to veterinary care, combining rest, rehabilitation, and nutritional support to achieve the best outcomes for our furry patients.

Let's now look closely at the various types of collagen and their significance. They all play different roles in the healthy working of your pet's body.

**Type I Collagen:** This is the most abundant collagen type in the body and is crucial for skin, bone, teeth, and connective tissues. Supplementing with type I collagen can help improve skin health and appearance of your dog's coat, as well as support bone density and strength.

**Type II Collagen:** Undenatured type II collagen is specifically beneficial for joint health due to its unique preservation method that maintains its natural structure. This form of collagen is produced in a way that keeps its bioactive peptides intact, which is critical for directly supporting joint cartilage. It helps to modulate the immune system's response to the body's own joint cartilage, which can help reduce inflammation and discomfort associated with joint disorders such as arthritis.

**Type III Collagen:** This type of collagen is commonly found with type I and helps to maintain skin elasticity and firmness. It is also important for the structure of muscles, organs, and blood vessels. Supplementing with type III collagen can support the health and function of these tissues, and can be particularly beneficial in young and growing dogs, as well as older dogs that may need more support for skin elasticity and muscle health.

**Type V and X Collagen:** These types are less commonly discussed but are important for the formation of cells and tissues involved in bone formation and cartilage. They support the health of the skeletal system and can be beneficial for overall bone and joint health.

## How The Process Works

Collagen provides the necessary building blocks for the repair and maintenance of tendon and ligament tissues. As dogs age or experience injuries, the natural production of collagen can decrease, leading to weaker connective tissues and a higher risk of injury.

Supplementing with both Type I and Type III collagen can help provide the materials needed for ongoing repair and maintenance, promoting the strength and elasticity of these tissues.

Undenatured type II collagen (UC-II) operates through a fascinating immunological concept known as 'oral tolerance.' When ingested, the intact collagen molecules interact with the gut-associated lymphoid tissue (GALT). This interaction helps to teach the immune system to recognize similar molecules in the joints as "self," reducing the immune response against the dog's own collagen in the joint tissue.

**This process can help decrease inflammation and slow down the progression of joint degeneration.**

Research and clinical trials have shown that undenatured type II collagen can significantly enhance joint comfort and flexibility. Dogs supplemented with this form of collagen often experience improved mobility, decreased inflammation, and a reduction in joint pain, leading to a better quality of life and increased activity levels.

One of my most memorable cases was with a Labrador Retriever named Max. Max was an older dog suffering from severe arthritis. His owners were devastated to see him struggle with basic movements like climbing stairs or getting up from his bed. They had tried various treatments, but nothing seemed to provide lasting relief. He had improvement it just was not enough.

I suggested incorporating collagen supplements into Max's diet, specifically targeting his joint health. The results were beyond expectations. Within a few months, Max's mobility improved drastically. He could climb stairs with ease and even started playing fetch again, something he hadn't done in years. Seeing Max's transformation and the joy it brought to his family was incredibly rewarding and reaffirmed my commitment to holistic veterinary care.

## **Choosing and Using Collagen Supplements**

Just like with other supplement products, the quality can vary and this is why it's important to be careful when selecting a collagen supplement. Especially when choosing a broad spectrum collagen for Type I and Type III, many of these contain Type II as well, however it is critical to know that the company is producing a good quality product maintaining the collagen peptides integrity. Otherwise, choose a supplement that specifically states on the label and includes undenatured type II collagen. These products are more likely to preserve the beneficial properties of collagen needed to effectively support joint health.

Dosing for collagen can be confusing, for full spectrum collagen it is 100 mg of collagen per pound of dog. However, many of the good supplements have other proteins along with the collagen. The reason is to not damage the peptides through processing trying to just get collagen, so their dosing will be much higher.

For undenatured type II collagen (UC-II), the typical dosage by itself is 1 mg per pound of body weight. UC-II is used in smaller amounts due to its potency and that it has had other proteins removed leaving only UC-II.

Collagen is central to the health of your dog's joints and connective tissue like tendons and ligaments. By ensuring you select a high-quality product and follow their label directions, you can significantly contribute to your dog's mobility and comfort. Collagen is definitely not just a supplement; it's a crucial investment in your dog's long-term health and vitality, especially as they get older.

## Chapter 3

### Nicotinamide Riboside - Cellular Repair for Senior Dogs



## Nicotinamide Riboside – Cellular Repair for Senior Dogs

We all want our dogs to grow old as comfortably as possible. As dogs age, we naturally see a clear decline in vitality and their energy levels. Nicotinamide Riboside (NR) has emerged as a significant supplement for supporting aging canines and helping them in their senior years. This particular supplement boosts the levels of Nicotinamide Adenine Dinucleotide (NAD+). NAD+ is a crucial coenzyme that plays a vital role in cellular energy production, metabolism, and repair.

The levels of NAD+ decline as dogs age, which can significantly impact various cellular processes, including energy metabolism, the health of mitochondria (the energy powerhouses of the cell), increased oxidative stress, and even actual DNA repair.

By maintaining adequate NAD+ levels through supplementation, we can support all of these essential functions, potentially slowing the effects of aging and improving overall vitality.

My longtime client, Karen, came in one day with her dog Buddy, a 12-year-old Beagle with a heartwarming personality. Buddy had always been an active dog, but lately, Karen had noticed that he seemed more tired and less enthusiastic about his usual activities. He would often take longer naps and seemed to lack the energy he once had. Karen was worried and wanted to do something to help Buddy feel more like his old self.

Buddy was already on a balanced diet and taking joint supplements, but Karen was looking for something more to boost his overall vitality. I said, "Let's try nicotinamide riboside (NR), a form of vitamin B3, known to support cellular energy and improve mitochondrial function".

I explained to Karen, "Nicotinamide riboside can help boost cellular energy production and improve overall vitality. It's been shown to support healthy aging and increase energy levels. Given Buddy's age and symptoms, it might be just what he needs."

Karen was eager to try anything that could help Buddy, so we started him on a daily regimen of nicotinamide riboside. I advised her to monitor Buddy closely and report any changes she noticed over the next few weeks.

About a month later, Karen returned for a follow-up visit. As soon as she walked into the clinic, I could see the excitement on her face. "Dr. Dan, you won't believe the difference in Buddy! He's like a new dog! His energy levels have skyrocketed. He's running around the yard again, playing with his toys, and even going on longer walks without getting tired."



I was thrilled to hear the good news. "That's fantastic, Karen! I'm so glad to hear that Buddy is doing well. Nicotinamide riboside can be a powerful supplement for boosting energy and supporting healthy aging, and it sounds like it's working wonderfully for Buddy."

Karen nodded enthusiastically. "Absolutely. And not just his energy levels—his coat looks shinier, and he seems happier overall. It's like he's gotten a new lease on life."

## **Benefits Of Supplementing With Nicotinamide Riboside**

Supplementing with NR is believed to help replenish depleted NAD+ levels, which may lead to improved energy and allow older dogs to maintain a more active lifestyle. It can also enhance metabolism, which can help manage weight and prevent obesity-related issues in senior dogs.

Researchers claim that NR can also assist in better management of age-related cellular decline, meaning that it could potentially extend the lifespan of your canine friend.

### **How It Works**

NAD+ is crucial for the conversion of food into energy. Therefore by increasing NAD+ levels, it can enhance the metabolic functions of cells, providing them with more energy and improving overall vitality. This is particularly beneficial for older dogs, who typically suffer from decreased energy levels.

NAD+ also plays a role in DNA repair processes and so NR supplementation can help maintain the integrity of cellular DNA, which is crucial for preventing mutations and maintaining health at a deep cellular level. This is particularly important in aging dogs, as DNA damage accumulation is a hallmark of aging.

There is evidence suggesting that increased NAD+ levels can have neuroprotective effects. This can be beneficial for maintaining cognitive functions in dogs, potentially helping to manage or delay the onset of cognitive dysfunction syndrome (CDS), which is similar to dementia in humans.

And finally, increased NAD+ levels may help reduce inflammation, leads directly to various chronic diseases such as arthritis and heart disease.

While the research on NR's benefits for dogs is still developing, early studies and anecdotal evidence show positive signs for enhancing the quality of life in senior dogs. Continued research is expected to provide deeper insights into how NR can be effectively used in canine health management.

Nicotinamide Riboside represents a cutting-edge approach to supporting the health and vitality of aging dogs through cellular repair and energy metabolism enhancement. By understanding and give NR to their dogs as a supplement, pet owners can take an active role in managing their aging dogs' health, offering them a fuller life in their golden years.

## Chapter 4

### Enzymes - Catalysts of Digestion and Beyond



## **Enzymes - Catalysts of Digestion and Beyond**

Enzymes are important biological catalysts that play a vital role in virtually every aspect of your dog's health. From digestion to cellular functions, enzymes facilitate a myriad of biochemical reactions that keep your dog healthy and active.

A primary role of enzymes is in digestion. Enzymes such as proteases, amylases, and lipases are crucial for breaking down proteins, carbohydrates, and fats. This is essential for the absorption of nutrients into the body, turning meals into valuable energy and building blocks for the body.

Without these enzymes, nutrients from even the most balanced diets cannot be effectively utilised, which can lead to deficiencies and symptoms appearing over time.

### **Age-Related Enzyme Decline and Digestive Health**

As dogs age, their natural production of digestive enzymes can decrease, leading to digestive problems such as malabsorption, bloating, and discomfort. Conditions like pancreatitis or inflammatory bowel disease worsen these issues. Supplementing with digestive enzymes can be a game-changer for these dogs, improving nutrient absorption and overall gastrointestinal health.

Enzymes also play a pivotal role in metabolism and detoxification. They help convert glucose, fatty acids, and amino acids into ATP, the energy currency of the cells. This process is vital for maintaining your dog's energy levels and overall vitality.

In detoxification, enzymes in the liver transform harmful toxins from the environment or drugs into less harmful substances. This process is crucial for preventing the build-up of toxins and supporting the health of the liver.

Meanwhile, at the cellular level, enzymes are involved in DNA replication and repair, and are crucial for healthy cell division and function. These processes are fundamental for growth, healing, and preventing genetic diseases.

Enzymes also regulate immune responses, preventing overreactions that could harm the body while fighting off infections effectively. They help maintain immune system function, supporting your dog's ability to ward off sickness and disease.

### **Biohacking With Enzymes**

Because of the other properties enzymes possess, they can also be used as a natural anti-inflammatory. When given on an empty stomach, enzymes bypass digestion and enter the bloodstream intact, where they can then break down inflammatory proteins, thus reducing swelling, pain, and inflammation systemically. They are particularly beneficial for conditions such as swelling after surgery and chronic inflammatory diseases like arthritis.

My client Sandy came in with a concerned look on her face and asked, "Dr. Dan, is there something to give to Buster for inflammation? Buster, an 8 year old American Bulldog, has a sensitive stomach, and she's tried certain nonsteroidal anti-inflammatories (NSAIDs), but they didn't work for him. She also tried Boswellia complex, but everything gave the poor pup loose stool or diarrhea. So I said, "Yes, of course there is. We can try enzymes."

Sandy looked puzzled and asked, "Enzymes? Isn't that what he takes with his food to help him digest?"

"Yes, it is," I replied, "but have you given the enzymes on an empty stomach before?"

Sandy shook her head and said, "No, why would I do that?"

I explained, "When given on an empty stomach, enzymes can help reduce inflammation. This method allows the enzymes to be absorbed directly into the bloodstream, where they can target inflammation throughout the body, rather than being used up in the digestive process."

Sandy's eyes widened with interest. "I had no idea! How does it work?"

I continued, "Enzymes have natural anti-inflammatory properties. When they're not busy breaking down food, they can circulate in the body and help reduce inflammation. This can be particularly beneficial for dogs like Buster, who have sensitive stomachs and can't tolerate traditional anti-inflammatory medications."

Sandy nodded thoughtfully. "That makes sense. So, how do I give it to him?"

I instructed her, "Simply give Buster the enzymes an hour or longer before or after his meals. Start with a small dose and gradually increase it, observing how he responds."

Relief washed over Sandy's face. "Thank you so much, Dr. Dan. I'll give it a try and see how Buster does."

A week later, Sandy returned with a much happier demeanor. "Dr. Dan, the enzymes are working! Buster's pain has decreased, and he is moving like a pup again. It's such a relief to see him feeling better."

## Dosing Enzymes

I'm going to sound repetitive, but it's crucial to prioritise quality. When using digestive enzymes, it's best to follow the instructions on the product label when feeding. Typically, you add the enzymes to the food 15 minutes or more before feeding. You can also administer them on an empty stomach with a small treat, if necessary, to benefit from other biohacking advantages of the enzymes. However, there are specific enzymes like bromelain, papain, or serrapeptase which can be purchased specifically for inflammation and other bodily processes. The recommended dosage for these enzymes is 25 mg per 10 pounds of body weight.

You may have always associated enzymes with digestion when you've heard them discussed in terms of human health. But they are far more than just digestive aids. Enzymes are central to a wide range of biological processes that impact your dog's health, from the cellular level to overall vitality and immune function. With targeted supplementation, enzymes can also prove to be a very useful biohacking tool for your pet.

## Chapter 5

### Quercetin – The Allergy, Inflammation and Zombie Fighter



## Quercetin – The Allergy, Inflammation and Zombie Fighter

Quercetin is a powerful compound found naturally in various fruits, vegetables, and grains. Well known for its potent antioxidant and anti-inflammatory properties, quercetin has become an increasingly popular supplement for managing allergies and inflammation in dogs.

Quercetin works by inhibiting the release of histamine and other inflammatory triggers in the body, making it an excellent natural remedy for allergic reactions and excess inflammation. This helps to alleviate symptoms such as itching, swelling, and discomfort in dogs suffering from various conditions, including arthritis, skin irritations, and respiratory issues.

Essentially, quercetin functions similar to an antihistamine, which is one of its best qualities. This makes quercetin particularly valuable for dogs dealing with seasonal allergies, food sensitivities, or environmental triggers. By calming the histamine response, quercetin can reduce symptoms like excessive scratching and sneezing.

With arthritis being a very common issue for many breeds of dogs, this is another supplement which can play a positive role in combating this inflammatory condition. Quercetin's anti-inflammatory properties can help lessen joint pain and improve mobility, contributing to an overall better quality of life for your pet.

One day, my client Emma came to see me with her 11-year-old Golden Retriever, Harper. Harper had always been a lively and joyful dog, but lately, Emma had noticed that Harper seemed to be aging more rapidly. She was slowing down, showing signs of stiffness, and generally appearing less vibrant. Emma was particularly concerned about Harper's overall health and longevity.

Harper was already on a comprehensive health regimen, including joint supplements and a nutritious fresh food diet. However, Emma was looking for something to help Harper not just maintain her current health but potentially reverse some of the signs of aging. After considering her concerns, I decided to introduce her to quercetin, a flavonoid known for its antioxidant properties and its ability to remove senescent (zombie) cells.

I explained to Emma, "Quercetin can help with Harper's stiffness and overall aging process. It has powerful antioxidant properties and is also known to help clear out zombie cells, which are cells that have stopped dividing and contribute to aging and inflammation. By removing these cells, we can improve Harper's health and potentially increase her lifespan."

Emma was intrigued by zombie cells! What is this the Walking Dead?! But she was eager to try anything that could help Harper feel better. We started Harper on a daily dose of quercetin, carefully monitoring her response to the new supplement.

A few weeks later, Emma returned to the clinic with Harper. The difference was noticeable even before Emma spoke. Harper's coat looked shinier, and she moved with a bit more spring in her step. Emma was beaming with excitement.

"Dr. Dan, I can't believe the change in Harper! She seems so much more energetic and lively. It's like she's gotten a few years younger," Emma said enthusiastically. "She's playing more, moving more easily, and just seems happier overall."

I was delighted to hear the good news. "That's wonderful to hear! Quercetin can be quite effective in improving cellular health and removing those zombie cells that contribute to aging."

Emma nodded, clearly relieved and happy. "Yes, and I've noticed she doesn't seem as stiff in the mornings anymore. She's even been running around the yard more, something she hasn't done in months."

## **Quercetin – The Zombie Cell Killer**

Beyond its main capabilities as an antihistamine and anti-inflammatory agent, quercetin also shows potential in addressing aging-related cellular changes, specifically in the management of senescent cells, which are often referred to as "zombie cells." These are cells that have stopped dividing but do not die, contributing to aging and various age-related diseases due to their secretion of inflammatory and tissue-degrading molecules.

Quercetin has been identified as a senolytic agent, which means it can help selectively induce kill off these senescent cells. By promoting the clearance of these cells from the body, quercetin supports tissue rejuvenation and reduces the high levels of inflammation at the root of chronic conditions.

Research, primarily in animal models, has demonstrated that quercetin, particularly when used in combination with other senolytic agents, can effectively eliminate senescent cells. This ultimately leads to improved physical function overall and can potentially extend the healthspan of your dog.

## **Dosing and Choosing the Right Quercetin Supplement**

It's important to choose a high-quality product that specifies the amount of active quercetin per dose. Typically 5-10 mg per pound of body weight of the dog. Some supplements may combine quercetin with other ingredients like bromelain or vitamin C, which are intended to enhance its absorption and effectiveness. If your quercetin supplement contains other ingredients, be sure that they are safe for your dog. With the right approach, quercetin can be a valuable addition to your dog's dietary plan.



## Chapter 6

### Mushrooms - The Immune and Cognitive Enhancers



## Mushrooms - The Immune and Cognitive Enhancers

Mushrooms? For dogs, really? Yes, the idea of incorporating mushrooms into your dog's diet might seem a bit weird at first. But stick with me on this. Certain medicinal mushrooms, such as Lion's Mane, Cordyceps, and Reishi, are proving to be powerful supplements for enhancing both the immune system and cognitive functions in dogs.

These medicinal mushrooms, along with a handful of others, are exploding in the alternative health world as more and more health-conscious humans learn about their benefits in terms of mood, concentration, energy levels, and more.

My lovely assistant, Val, has a companionable old soul, Isaac, a black Labrador Retriever, weathered and wise at 13 years. Despite being on a regimen of supplements for arthritis in his hips, knees, and lower back, Isaac moved with a sluggishness that didn't quite match his spirited eyes. He wasn't visibly in pain, just noticeably lacking the zest.

After giving it some thought, I decided to experiment with cordyceps mushrooms. I usually prescribe this supplement to my athletic patients to enhance their stamina. As an athlete, I have been using this mushroom supplement for my own athletic pursuits. However, I had never tried it on an older dog before. I wondered if it could provide the same vitality boost to Isaac that it did for my more younger canine patients.

Two days after administering the cordyceps mushrooms, I brought my border collie to play and train with Val's border collies. They were all playing with a ball in her large fenced backyard, while Isaac was doing his own thing, wandering around and sniffing the grass as he usually did. We didn't expect much change in his behavior so soon after starting the new supplement.

Suddenly, to our astonishment, Isaac began to show an unexpected burst of energy. He started chasing the border collies around, trying to catch them and the ball they were playing with. It was as if a switch had been flipped. Isaac, who had been moving sluggishly just days before, was now racing around with youthful enthusiasm. Val and I watched in amazement as he tried to keep up with the younger dogs, his tail wagging furiously, and a joyful sparkle in his eyes.

The only thing that had changed in Isaac's routine was the intake of cordyceps mushrooms. It was clear that the supplement had made a remarkable difference in his energy levels and activity. Seeing Isaac so energized and active brought immense joy to both Val and me. It was a reminder of how small changes in care and treatment can have a profound impact on the quality of life for our beloved pets.

From that day on, Isaac continued to enjoy his newfound energy, participating more actively in playtime and showing a level of vitality that was a delight to witness. The success of cordyceps mushrooms in Isaac's case opened up new possibilities for its use in other senior dogs, offering a promising option to enhance their well-being and longevity.

Let's now explore three of the most effective mushrooms which you may wish to consider introducing into your dog's life.

## **Lion's Mane**

Lion's Mane is renowned for its potential to support brain health, thanks to its special ability to stimulate the production of nerve growth factors. These factors are essential for the maintenance and growth of neurons, which are crucial for cognitive functions including memory and learning.

For aging dogs or those experiencing cognitive decline, Lion's Mane can be particularly beneficial, potentially combating symptoms associated with conditions like canine cognitive dysfunction.

## **Cordyceps**

Best known for its energy-enhancing properties, the cordyceps mushroom works by increasing the body's production of adenosine triphosphate (ATP), which is vital for delivering energy to the body and especially muscles. This can lead to improved stamina and vitality, making Cordyceps an excellent supplement for older dogs or those recovering from illness.

Cordyceps has also been shown to support respiratory health and oxygen utilization, which is beneficial for dogs with respiratory issues.

## **Reishi**

Reishi mushroom is often referred to as the "mushroom of immortality" due to its immune-boosting capabilities. It can help increase the activity of white blood cells, which are critical for fighting infections and cancer.

Meanwhile, Reishi's anti-inflammatory properties also make it beneficial for dogs with allergies or autoimmune disorders, helping to manage chronic inflammation and promote overall well-being.

## **Seek The Best Quality**

The quality of the mushroom product is paramount. It is essential to source high-grade mushroom supplements that are grown on appropriate substrates and harvested at the right time. I'd advise doing some research into the company producing the mushroom

supplements because even some of the most popular companies may cut corners and harvest the mushrooms before they mature and reach their full potential.

**Also if you are using brands that are marketed for humans be sure that the products do not contain other ingredients that are harmful to your dog.**

Adding mushroom supplements to your dog's diet is pretty straightforward. Most come in powders or capsules that can be easily mixed with your dog's food. Follow the label directions because quality is so variable. A good quality mushroom powder, the dosing would be 10-20 mg per pound for a healthy dog. That dosage can go significantly higher in dogs that have an illness or a problem that you are treating. Having learned about the significant benefits of medicinal mushrooms like Lion's Mane, Cordyceps, and Reishi, it's well worth doing further research to discover more about potential substantial improvements in your dog's quality of life.

## Empowering Your Dog's Health Through Biohacking

The world of biohacking for dogs underlines that the strategic use of supplements is not just about addressing deficiencies—it's about enhancing your dog's life in every possible way.

We've delved into the benefits of six critical supplements: Fish Oil, Collagen, Nicotinamide Riboside (NR), Enzymes, Quercetin, and Medicinal Mushrooms. These have been chosen due to their proven ability to support various aspects of canine health, from improving joint function and boosting cognitive abilities to enhancing energy levels and fortifying the immune system.

The journey to optimizing your dog's health through supplements requires a thoughtful approach. It's about understanding the specific needs of your dog and tailoring their supplementation the right way.

Whether your dog is facing the challenges of aging, battling chronic conditions, or you're simply aiming to enhance their overall well-being, the supplements we've covered offer a solid foundation for a healthier, more vibrant life.

### Consultation with Veterinary Professionals

Don't forget that, while supplements can offer tremendous benefits, they are most effective when used under the guidance of veterinary professionals. Consulting with a veterinarian that has unique knowledge of supplements ensures that any supplementation plan is safe and tailored to your dog's unique health requirements. This professional oversight will prevent any negative interactions between supplements and medications, and it also means that dosages will be adjusted as needed for your dog's changing health landscape.

Once again, the importance of selecting high-quality supplements cannot be overstated. The effectiveness of any biohacking strategy is heavily dependent on the purity and potency of the supplements. Always opt for products that are transparent about their ingredients and sourcing, and choose reputable brands that have undergone rigorous testing.

Did you know you can schedule a virtual consultation with Dr Dan? These personalized sessions provide you with tailored wellness, nutritional advice, and biohacking strategies to optimize your dog's health and longevity. Whether you're looking to enhance your dog's daily routine with the right supplements or need expert guidance on holistic approaches, Dr. Dan is here to help. Visit <https://biohackingfordogs.com/product-category/consultations/> to book your consultation today and take the first step towards your pup's healthier, happier life. Help them to thrive, not just survive!

Finally, enhancing your dog's health requires a fuller, big-picture approach beyond supplements. This means also incorporating a balanced fresh diet, regular exercise, mental stimulation, and plenty of love and care. When all of these other key ingredients are

present, the supplements can work even more effectively within the broader context of your dog's lifestyle.

As research evolves and new discoveries are made, I have no doubt that the market for dog supplements will continue to expand, offering even more options for enhancing the health and longevity of our beloved pets.

By staying informed and proactive, you can make well-considered decisions that help your dog not only live longer but thrive.

# About the Author

## **Dr. Daniel Beatty, DVM, CAC, CVA, CERP - The Biohacking Veterinarian**

Dr. Daniel Beatty, affectionately known as Dr. Dan, is a holistic veterinarian dedicated to enhancing the health and longevity of dogs through innovative biohacking techniques. With over 25 years of experience, Dr. Dan has earned a reputation for his expertise in acupuncture, chiropractic care, and integrative veterinary medicine.

As a jiu-jitsu competitor, Dr. Dan understands the importance of peak physical and mental performance. Competing and winning at the prestigious Master Worlds in Las Vegas, he has experienced firsthand the benefits of biohacking for achieving and maintaining optimal health. His commitment to these principles extends beyond himself to the canine patients he cares for.

Dr. Dan's passion for biohacking was inspired by his own journey in competitive sports and his love for his border collie, an agility dog. This personal motivation drives him to explore and apply cutting-edge health strategies to ensure dogs lead long, vibrant lives.

At his website, Biohacking for Dogs, Dr. Dan offers personalized care plans that integrate traditional veterinary medicine with modern biohacking techniques. He is a firm believer in the transformative power of high-quality supplements, nutrition, and natural health methods to optimize canine health and prevent age-related ailments.

Dr. Dan's approach is rooted in scientific research and proven clinical success. He meticulously selects the best supplements and treatments to address various health needs of dogs. His holistic treatments aim to improve joint health, boost cognitive function, enhance energy levels, and support overall well-being.

Through his ebook, "The Canine Longevity Code: The Top 6 Supplements to Boost Your Dog's Health and Longevity," Dr. Dan shares his wealth of knowledge and experience. He provides dog owners with practical advice on incorporating these powerful supplements into their pets' daily routines, empowering them to take proactive steps towards optimizing their dogs' health.

For personalized guidance on choosing the right supplements and biohacking strategies for your dog, visit <https://biohackingfordogs.com/product-category/consultations/> to schedule a virtual consultation with Dr. Dan.

These consultations are intended for general wellness, nutritional advice, and biohacking strategies only and do not include medical diagnoses, treatments, or prescriptions. Please be aware that the advice given during these consultations is not a substitute for professional veterinary care. If your dog is experiencing a medical emergency or has specific health concerns, contact your local veterinarian immediately. By participating in these consultations, you acknowledge the limitations of this service and agree to consult with a licensed veterinarian for any medical issues. For more detailed medical advice, diagnosis, or treatment, please schedule an in-person visit with your local veterinarian.

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