THE BEST STRATEGIES TO RESYNC YOUR *PERFORMANCE & RECOVERY* WITH *COLLAGEN*

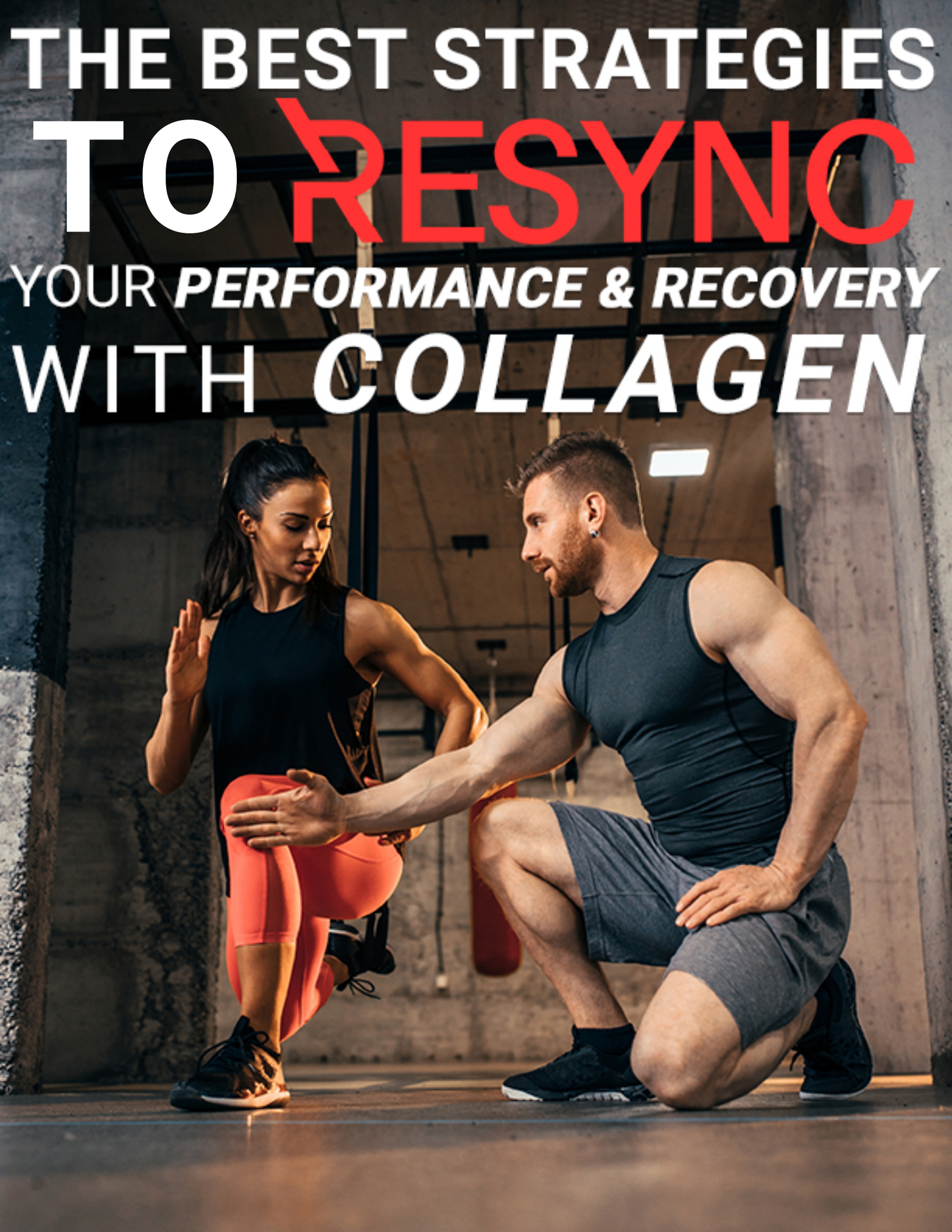


Table of contents

A Note from the CEO and Founder of Resync

Hi, my name is Barbara Depta. I want to share with you the reason I first became interested in collagen and how it changed my perception on movement and athletic recovery.

Unlike the trendy term it is today, “collagen” had nothing to do with beauty, energy, or athletic performance back when I got interested. It was a topic not many people knew about but those that did, saw it as the great unifier of all our body’s systems.

For me, it all started with a personal injury more than 29 years ago. A broken elbow limited my range of motion and fascia’s tightness around my joint left me with more than physical pain; the injury left emotional pain that cut just as deep. As a young gymnast at the time, I didn’t even know what collagen or fascia were, let alone how the health of both is directly linked to our structural integrity, balance, athletic performance, and wellbeing. Before researchers, clinicians, and coaches were so well connected by the internet, few actually knew the significance of our connective tissues; there was no awareness of fascia—the “meta” connective tissue that connects all our other connective tissues—and maybe some early theories on collagen existed, but the knowledge was very limited in the early 80’s. It wasn’t until more than a decade later, when researchers at Harvard University started to get interested, that we started to get some answers on this extraordinary connective tissue.

It was in 2010, when I switched my focus from strength training and became a certified fascia stretch specialist, that my personal connection to fascia and its relevance to our health and athletic performance came together. This was still before collagen was considered “the new superfood”, so when I learned that fascia is made 70% of collagen, it hit me how important our nutrition can be. I started researching how our daily habits and nutritional choices contribute to the health of our collagen structures and the health of our fascia. Seeing how much my injury affected the functionality of my entire body and my emotional balance, I wanted to learn as much as I could about the structures of our connective tissues. I couldn’t leave it at that, though. I needed to pass on what I learned to anyone interested in taking their body awareness and performance to the next level.

There are so many lessons and so much valuable information that I want to share with you. In our discussion on performance and recovery, I want to start with the most essential facts about the anatomy of your connective tissues, collagen being one of them.

Why you may ask? Because with this fundamental information, you will be better equipped to make the best choices for yourself about the details of supplementing with collagen. Once you understand why, when, and how to supplement, I’ll introduce you to a collagen product I created to support professional athletes’ performance, and to speed up their recovery so you also can take your performance to the next level.

When you read this book, please pay close attention because each section truly has its own value. *The importance of this topic deserves more than a quick read. Try not to go over my message in a superficial way, as nothing in life that matters is depthless.*

As a structural balance and performance coach, wife, and business owner, I know that staying well balanced and performing on the top level, can be challenging at times. Yet, what is life without your health? A healthy body is a well performing body. A structurally balanced body is a pain free body.

I hope this book will serve you well. References to recent scientific research are included throughout to help you and your healthcare provider understand the latest science in this field. I know that I've talked with professionals who didn't think that collagen health is all that important, or they didn't know the science behind targeted supplements to support your joints and other connective tissues, but quality research and empowered patients are what's going to turn that idea around! Please share this with your nutritionist, strength and conditioning coach, dietitian, or any other health professional who might be helping you with your diet and performance.

Just by picking up this eBook, you are taking steps to live and feel your best. Please enjoy!

CEO and Resync Founder Barbara Depta demonstrating the importance of connective tissue balance.

Who Is This Book For?

Whether you're an athlete who's been around the track or you're just starting to get physical, you probably know a bit about **collagen**. Gelatin supplements—a crude source of collagen—have been advertised for performance enhancement, weight loss, better skin, and healthier joints for decades. If you've been anywhere other than under a barbell, you've heard about this latest trend in the supplement market.

This e-book will update what you know about collagen with the latest research—some of the articles we reference were published within weeks of this eBook release. We're not going to waste your time with fillers or clickbait, we'll leave other supplement companies to do that. As succinctly as possible, we are going to give you the facts, techniques, and tactics you need to up your game.

In this eBook, we will tell you:

- What the best collagen supplements do to enhance your performance and speed up your recovery
- How collagen can be paired with your food and other nutraceuticals to maximize its recuperative effect
- How to translate the best clinical science into your everyday routine
- Why using tested collagen matters for your health and performance
- The framework by which the most expert athletics researchers are thinking and how you can do the same
- The most common ways connective tissue is damaged and how to know when you need to seek outside help

This message is intended for recreational and professional athletes, but if you're at all interested in improving your physical performance, you'll see results by implementing this material.

What will this e-book not do? There is no magic bullet, no secret sauce, no supplement or one technique that can replace effective training, targeted high-quality fuel for your muscles, the time-tested effectiveness of a good night's rest, or the professional advice of a certified coach or a licensed health professional. But if you're ready to take your game to the next level, this is for you.

Please note, this book is for educational purposes only. It is meant to provide clarity on the subjects of collagen, supplements, diet, and how you can best support your body's ability to heal itself. The information in this book does not claim to diagnose, treat, or cure any medical conditions. We provide you the resources that you can pass on to your healthcare provider. With their clinical judgment and our expert opinion, they can help you use this information to maximum effect.

From your team at Resync,

CEO & structural balance and flexibility coach, **Barbara Depta**

Registered dietitian, **Detrick Snyder**

Recover Effectively to Feel and Perform Your Best

To have an edge over your competition while at the same time sustaining a healthy body and mind, you have to pay attention to your training, your sleep, what you eat, and how you supplement. Being an athlete is all about maintaining your edge and improving on what's holding you back, wouldn't you agree?

To fix your weaknesses and keep up your strengths, it takes more than just keeping your muscle mass in good condition. You have to pay attention to your whole connective tissue health. For example, if you have a good coach, you might know that an intensive training program with short recovery times raises the risk of injury. A regimen that strengthens your overall musculoskeletal system – which includes muscles, joints, bones, tendons, fascia and ligaments, all with their respective recovery windows – can prevent injury. This means that to have an effective workout routine, you have to have an effective recovery routine. Even if you take advantage of other tools to accelerate recovery—and we'll definitely show you how to do that— the basic tenet stands that each element has to have enough time to recover if you want to sustain your optimal health.

If you are an elite athlete, you use advanced methods to adapt to a high-intensity training load. When you're pushing your ability, you must use different hands-on therapies to support recovery and prevent injury. Massage, myofascial release, fascial stretching, medically-supervised hyperbaric oxygen treatment, mineral baths, contrast baths, cryotherapy, watsu therapy, and myofascial release are some of the most effective cutting-edge treatments used today by the best professional athletes.

At Resync our motto is: "An Under-Recovered Athlete Becomes An Injured Athlete"™.

Remember: your sleep, eating patterns, predisposition to injury, focus, immune system, sex drive and overall performance are affected when you are over-trained and under-recovered.

For the purpose of our discussion, we will focus mostly on your nutrition. From the most superficial skin layer to the deepest internal structures, the way you eat is the most impactful way to optimize, or undermine, your health. You've probably heard the saying: "You are what you eat," right? When it comes to muscles, tendons, ligaments, fascia and joint health, this is especially true, and the studies prove it. **How you eat is how you feel. How you eat is how you perform and recover.**

And let's not forget that the way you feed your body has the potential to manage chronic discomfort, pain and inflammation. The great advantage of using food as your medicine is that it carries a long-term safety profile and no serious adverse effects. Better than any other strategy to support musculoskeletal health is the combination of high-impact physical activity (at a level you're able to recover from) and adequate nutrition that provides the building blocks for that recovery process. Besides this, calorie control is critical for your musculoskeletal system to perform at its best, since excess weight places excess stress on your joints.

As you read this first section on the structure and function of collagen, you will quickly see that you need to pay attention to collagen to maximize your athletic performance, avoid injury and sustain a healthy lifestyle. **Collagen** isn't a complete amino acid, it isn't the number one protein for muscle protein synthesis (even though it ranks up there in the top five), but it is the most important part of your diet to support your connective tissue. What good are powerful muscles without the steel-strength tendons made of collagen that connect them? We know that collagen should be a part of your protein requirements every day, and that's why it will be the subject of our discussion.

You can build up your connective tissues by eating foods naturally high in collagen proteins like bone broth, fish scales, and gelatin. But I get it: it's not that easy or convenient to eat these foods in high quantities at the right times. This is why you can support your body's innate collagen synthesis with the right supplement: collagen peptides combined with antioxidants are a science-backed way to guarantee your health, your performance, and your recovery.

Resync Collagen Blend - Resync Your Joints was developed to revolutionize the collagen market. It supports your performance and recovery like no other product can. It is in its own class of quality-certification. Take a look at our ingredients:

- Clinically studied hydrolyzed collagen peptides
- A proprietary natural nitric oxide blend of standardized red spinach (*Amaranthus tricolor*) leaf extract, red beet (*Beta vulgaris*) root powder, and aronia (*Aronia melanocarpa*) berry extract
- Bioavailable calcium (as calcium fructoborate)
- Hyaluronic acid (as sodium hyaluronate)
- And vitamin C (as ascorbic acid).

As you can see, Resync is formulated to deliver the most functional nutrients that optimally support clean, deep energy and connective tissue health, and nothing more. It is certified for safety and quality to stand above other collagen supplements as the cleanest way to support your athletic performance and recovery. † We'd say try it today, but we know that you need more than a celebrity endorsement to consider putting something in your body. Keep reading and use your own judgement to see if our product is right for you.

Anatomy of Collagen

Why Should I Care?

In every body connective tissue supports, connects, and separates tissues and organs. It is made up of bones, joints, tendons, ligaments, cartilage, and fascia (the tissue that connects all the others). These soft tissues infuse and connect your muscles and transmits the force they generate [Arora et al., 2017].

Over and over its been made so clear to me that people don't pay attention to their collagen and connective tissue. I've seen the same story in people of all walks of life: cycling between injury and recovery for years, sometimes people don't have the tools to get the life they once had back. We're dedicating the first section of this ebook to anatomy and function so you can see how important a healthy collagen is for performance, injury prevention and recovery.

Connective tissue is comprised of two major proteins: **collagen** and **elastin**. Elastin has the capability to stretch and spring back into shape, making it an integral part of tendons, ligaments and skin [Anwar 1990; Labat-Robert and Robert, 2014]. Elastin is what moves your skin back into shape after you get poked. Strings of elastin are what connects your muscles to your bones and allows you to move your body however you choose, effortlessly.

As the main component of your connective tissue, collagen is the glue that holds your entire body together - it accounts for 30% or more of your body's total protein [Arora et al., 2017]. Many people think of it as inert, but in fact it is a dynamic, continuously moving and changing part of all your connective tissue, from your skin to your bones. Collagen provides structure and tension in tissues and their surroundings. The stronger it is, the stronger *you* are.

Collagen essentially consists of three long protein chains that form a triple helix. When relaxed, healthy collagen is elastic and mobile; when pulled tight, the fiber spirals intertwine and give stability. That stability is so great that **collagen has more tensile strength than steel!** As the strongest and most abundant of all the connective tissue fibers, collagen fibers' balance of flexibility and stability plays a critical role in the responsiveness and functionality of your connective tissue. How collagen is structured – the "collagen architecture" - is the key to your connective tissue functionality. A healthy collagen architecture provides benefits like dynamic stability, unloading of your muscles, and elasticity - all of which allow you to conserve energy instead of wasting it as you move. We'll get into the differences between healthy and unhealthy collagen structures later.

Healthy connective tissue and connective tissue integrity is particularly important for [Arora et al., 2017; Henry, 1957]:

- Anyone with a **physically demanding lifestyle** – high levels of activity place more demand and result in more collagen turnover.
- **Athletes** - studies have shown that both endurance and strength-trained athletes can benefit from supplementing with collagen protein.

- Anybody with a **connective tissue injury** - joint, tendon, and ligament injuries need extra support to heal their fastest and maintain their integrity.
- **Healthy agers** - collagen building ability naturally declines with age and the ratio of the different types of collagen in tissues changes. Collagen building capacity decreases by up to 30% in women in the first 4 years of menopause.
- Anyone with a **chronic inflammatory condition** (like a leaky gut, overweight/obesity, arthritis, or another autoimmune disorder) or excessive wear and tear on their bodies

It doesn't matter your age or activity level, the benefits you can get from having healthy collagen will help you experience life the way you want to. If your entire body is connected by a tissue stronger than steel, it makes sense that taking care of it is one key to your best health and optimal performance.

You may think that if you are young and healthy your body doesn't need support from a diet or supplements. Maybe you've got years behind you, but you seem to be doing better than other people in your age bracket. However, **waiting until symptoms show up for issues that take years to develop is a recipe for doing too little too late**. I have worked with a number of pro athletes who took their age for granted. Eventually they realized how a poor diet and little attention to recovery truly affected them, but it took being benched for at least a season to see it.

Most athletes are aware of the risk for injury that daily wear and tear poses. Plenty of careers in sports are cut short due to some injury to those connective tissues. Yet still, few people recognize how a superfood like collagen can support their tendons, ligaments and joint health. You don't want to be watching your life go by from the bench later on just because you underestimated the significance of the recovery process earlier in life.

Let's get it straight though: you do not need to play an impact sport or be a professional athlete to overuse or under nourish your body. Recreational athletes of all ages are forced to cut down their physical activity when their musculoskeletal system is no longer able to cope with basic stressors and strain.

This is why the recovery process deserves more recognition as a crucial aspect of performance and lifestyle. **Getting stronger, fitter, or healthier is just as much recovery as it is activity.** Recovery isn't just for the high-performance athlete, it's for any person trying to get active, from weekend warriors to soccer moms, from your first day trying a new workout to decades into doing something that seems to work for you, every person's body needs adequate recovery.

Collagen in the Body

Your body mainly consists of three types of collagen: types I, II, and III. There are other types (among 28 different types currently known, IV, V and X are also notable), but these three are the most common and most important for your performance.

- **Type I collagen** accounts for about 90% of the body's total collagen content. It is mostly found in the connective tissue of the skin, bones, tendons, ligaments, blood vessels, and heart.
- **Type II** is joint collagen found in cartilage.
- **Type III** is the second most common collagen, found in your skin and muscle tissue.

The stressors that different types of physical activity place on different bones, muscles, and connective tissues means that you might need to optimize which collagen type you eat to get the best results from a supplement. After we get through the science of supplementing with collagen, we'll describe what questions you should be asking before buying any collagen product.

Being the most common protein in your body, it's no surprise that collagen makes up a large part of every one of your internal organs. What's surprising is how much we take it for granted! Even the term "musculoskeletal" only refers to the muscles and the skeleton, while missing the pieces that connect them together. Keeping the glue that holds us together nourished and resilient is a key way to perform better, maximize recovery, and prevent injury in the first place! To get more of an appreciation of your collagen, take a look at the collagen content in your musculoskeletal system:

- Bones ~ 90% of the hard part of bone; 25% of the entire bone by weight
- Skin ~ 75% collagen
- Joint cartilage ~ 70% collagen
- Ligaments ~ 70% collagen
- Tendons ~ 85% collagen
- Fasciae ~ 70% collagen
- Muscle tissue ~ 6% collagen

It's obvious that connective tissue is not a passive player in your wellbeing; it connects everything you do and thus it plays a crucial role in your health and performance.

If you've ever felt long lasting side effects after injuring yourself, or if you know the pain and stiffness that can come with aging joints, you know how important a healthy connective tissue is for your well-being first hand. If you've never had a problem with your connective tissue, that's still not a reason to disregard it! Some doctors suggest that you can **slow the natural decline of collagen quality by taking a supplement**, and the research backs that idea up!

Cartilage: Keeping Things Smooth During and After Performance

Cartilage is a flexible, smooth, and elastic tissue made up of collagen. It acts like rubber padding over the ends of long bones at joints. It is a key structural piece of the rib cage, ear, nose, airways, spine, and any other place where bone meets bone. It is not as hard and rigid as bone, yet it is much stiffer and much less flexible than muscle [Mahon and Dunne, 2018; Vincent and Wann, 2018], making it the perfect tissue for connecting the two.

Healthy cartilage protects your joints and bones by absorbing the pressure and shock created during normal movement. Having healthy, resilient cartilage supports your energy by allowing you to move painlessly and effortlessly.

You might be familiar with the fact that cartilage does not have blood veins coursing through it with nutrients. If there's no way of getting those nutrients there, how then can what you eat affect your cartilage? We'll talk in depth about the myth that cartilage can't be repaired with nutrition in the section on collagen myths and misconceptions. For now, just know that your body *is* able to make cartilage and collagen on its own, but it needs the right building blocks in the right place at the right time over a long enough period to be able to do it effectively. You can supply those building blocks easily with a collagen supplement, but you'll need other nutrients to maximize its effect, most importantly: vitamin C, antioxidants, and natural nitric oxide precursors that help nutrients get to where they need to go.

Healthy, resilient cartilage supports your energy by protecting your bones from the regular impacts of daily life, both inside and out, allowing you to move with less effort and less pain. When you take the time to focus on your joint and heart health, you can see old injuries melt away and your recovery times speed up dramatically.

What Exactly Is Fascia and Why Is It Important?

We've covered collagen, the most well-known part of your connective tissue, and cartilage, possibly the most commonly and obviously injured part of your connective tissue. Now let's take a step back and look at the importance of "fascia" and how it is related to collagen.

Essentially, **fascia is the connective tissue that connects your connective tissue**. Fasciae (the plural of "fascia") are bands or sheets of connective tissue - about 70% of which is made up of collagen - located beneath the skin that attach, stabilize, surround, and separate muscles and organs [Abd-Elgaliel and Tung 2013; Schleip et al., 2012]. 70% is a huge proportion, wouldn't you say? It's just another reason why collagen is so important.

In 2012, Robert Schleip and other experts clearly defined what fascia is made up of: collagen, elastin, water, and "ground substance".

Collagen is the protein glue that holds your connective tissues together. The more collagen-rich your fascia is ("collagen density"), the more tensile strength it has, meaning it is more stable and better able to transmit the force of your body movement [Wu et al., 2017].

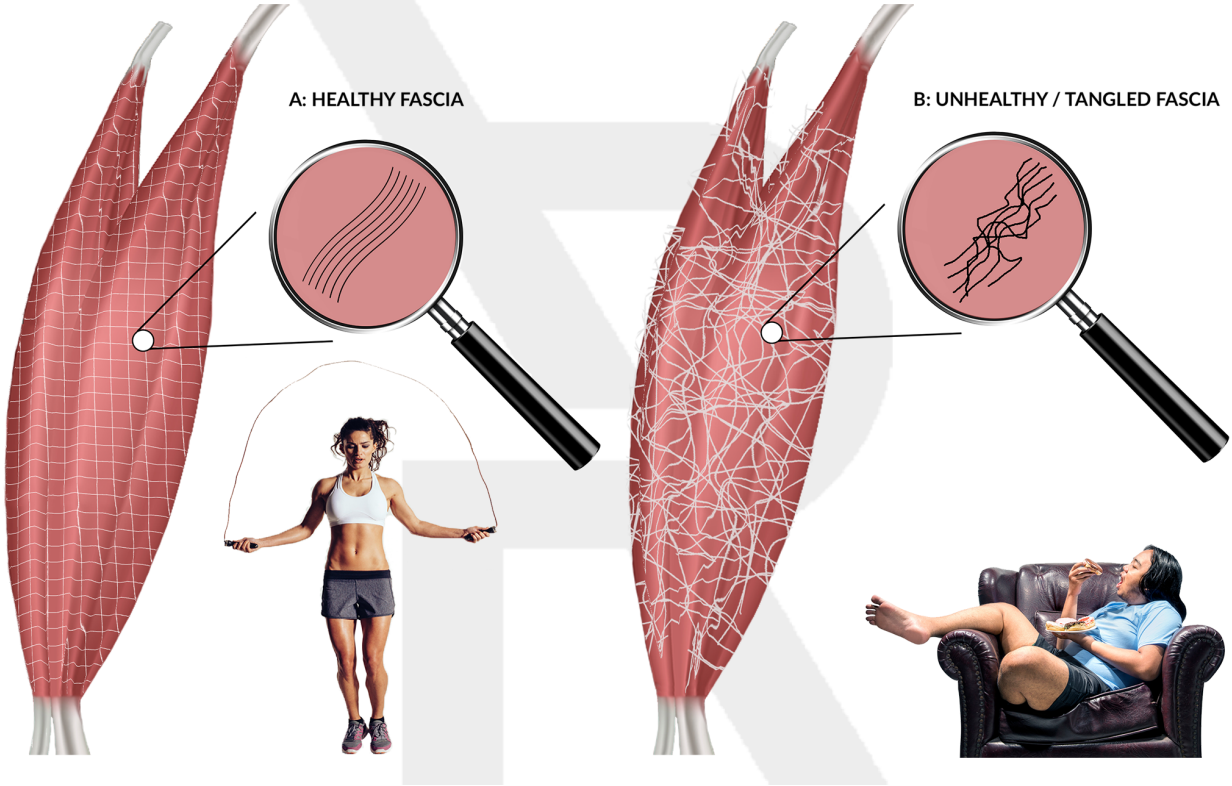
↑Collagen density → ↑Tensile strength → ↑Stability → ↑Force transmission → ↑Strength

Elastin fibers are found in highly pliable fascia layers of the skin, blood vessels, and elastic cartilage (think of your ears and the tip of the nose). Elastin fibers are also present in the deep fascia of the bones, muscles, and nerves; in fact, some ligaments like the ligamenta flava that holds your spine together are almost entirely made of elastin fibers [Mithieux and Weiss 2005].

Water is the second largest component of your fascia. Most of the water in fascia is bound to collagen, like the water absorbed by a sponge. Only some of the water in fascia is free flowing, the rest is incorporated into the very structure of fascia. What a reason to stay hydrated!

Ground Substance is a gel-like substance that contains some of the building blocks of collagen and connective tissue. It's the "in-between" space in the structure of fascia.

To form fascia, these connective tissues are closely packed in bundles of collagen fibers and arranged in a wavy pattern in line with the direction of your muscle's pull. If your fascia is healthy, it looks smooth and nicely organized, but if you are inactive or eat a lot of unhealthy, inflammation-causing foods, it can look tangled, knotted, and truly unattractive. As you can probably guess, the lower the quality of your food and movement, the less healthy your fascia becomes.



Fascia has different layers of depth. It flows between the layers of your skin, your bones, ligaments, and tendons. It protects your physical structures from breaking and it helps to prevent falling down in the first place. Fascia plays an important role in easing the post-exercise inflammation (delayed onset muscle soreness - more on that soon) which is necessary for muscle growth [Gibson et al., 2009]. It is an essential part of your connective tissue system that doesn't get enough attention when considering performance and recovery.

As each and every part of your body is connected with this tissue, we categorize groupings of fascia into “Fascia Lines,” or by what physical therapy master Tom Myers calls, “Anatomy Trains” [Myers, 2011]. These run up and down the full length of your body, connecting each of the muscles along the way in a sensitive, integrated macro-muscular system [Wilke wt al., 2016]. And when one muscle in the system is affected, you feel the repercussions in all of the others.

When even one pair of muscles is out of balance, whether from an injury or inflammation in a specific area, your body works overtime to compensate. At its most basic level, this means you might be spending more energy at all times, resting or active. Imbalances can also increase the workload on the nervous system, limiting your ability to perform specific movements or even from resting comfortably. It may feel natural to handle these changes with a less active lifestyle or accepting that you’ll be benched for the rest of the season. However, every day you have the power to choose what you put in your body and what you put your body through. You have the power to direct how you show up in the world mentally and physically.

Just because you can’t see it, that doesn’t mean you shouldn’t take care of it. Paying attention to what you eat and how you move can pay off in the long run for body part that’s all-too-important and not all-that-obvious. As I mentioned in the beginning, **nothing in life that matters is depthless**. If you just worry about how your body looks on the outside, you’ll miss out on the deeper benefits of a thoroughly optimized system.

The Science Of Supplementing With Collagen

Getting a picture of the anatomy of collagen and fascia is important: you know now that we're dealing with a complex system that is integrated into every other part of your body. On one hand, you can improve the health of your collagen and see the benefits from your skin to your veins to your bones. But on the other hand, just aim to improve one element of the system without focusing on your total body health and you're sure to be limiting your results.

Our ancestors believed that eating a specific part of an animal can help with issues with that same part of our own body. That principle particularly applies to collagen health, but the benefits extend well beyond just improving joints and tendons. If you pay attention to your collagen, you're going to see the benefits everywhere else.

Now that the anatomy lesson is done, it's time to get into what you're probably came here for: **what are the real, clinically studied benefits of collagen**?

The benefits of healthy collagen for athletes include:

1. **Providing your body dynamic stability**

What athlete doesn't want to have more structural balanced body?

2. **Unloading muscles to allow you to move with less effort**

Who doesn't want efficient movement, with more speed and more power?

3. **Assisting your elasticity and flexibility**

Greater range of motion? Yes, please!

4. **Supporting force-transmitters**

Want to conserve your energy instead of wasting it?

5. **Improving joint discomfort and stiffness**

Have an old injury that just won't go away? Do you happen to be one in four adults with arthritis?

Everything you do is affected by the health of your collagen, so it makes sense that getting a clean source of collagen protein can be a targeted solution to optimize your total functionality.

The past few years have seen a legitimate revolution in the science of supplementing with collagen. More high-quality studies in physically active people have been conducted in the past 3 years than in the history of collagen research for athletes. If you've been spending more time

in the gym than looking at recent research (and I hope you have!), then it's only reasonable that you might not be familiar with these recent advances.

Research Terms Used In Nutrition Studies

- A "**clinical trial**" is any study done on humans. Collagen studies on mice or cells in a petri dish can be useful, but only provide a piece of the whole picture.
- "**Control**" refers to the substance that the collagen is being compared against, usually maltodextrin or xantham
- "**Placebo-controlled**" means that the collagen is being compared to an inactive control that is supposed to do nothing
- A "**double blind**" study is higher quality because neither the researchers nor the people in the study know who's getting the collagen or the placebo
- The "**VAS score**" is an acronym for "Visual Analogue Scale", which refers to a scale that people in a study use to measure symptoms like muscle soreness or fatigue.
- "**Fat free mass**" is a way to say "everything but body fat" and is closely linked to muscle mass. Workout and weight loss programs try to keep fat free mass up while losing the fat.
- More muscle and less fat is generally considered a healthy "**body composition**".

Collagen and Body Composition

Whether you're lifting weights or losing weight, you might be taking a protein supplement to keep your muscle mass up. Popular choices usually have a good amount of essential amino acids (the simple proteins your body can't make on its own). Whey might be a popular option - it has plenty of good things going for it - but it doesn't optimize all elements of your physical system. Collagen and gelatin protein are emerging as quality protein sources that can support performance just like many of the other conventional proteins. Whey protein and collagen protein have complementary amino acid profiles, which may make the combination ideal for athletes [Siebrecht, Hausmanns & Kneféli, 2018]. Collagen has been shown to improve connective tissue health - not just joints and tendons, but muscles too - in healthy individuals [Shaw et al., 2017; Lis and Baar 2019] and even for people with osteoarthritis - an inflammatory condition where collagen is destroyed faster than it heals [Garcia-Coronado et al., 2019].

You might not be able to see it, but connective tissue supports your whole body's movement. Find a way to support that on a day-to-day basis, and you'll be stopping injuries before they happen and setting your body up for peak performance. We'll get into how collagen is used to improve recovery and prevent injuries in a moment, but first let's warm up by stacking collagen up against other proteins in the muscle-building and weight management class.

Making gains in your muscle mass is conventionally achieved with a complete protein like whey, casein, egg, pea, or some other protein powder supplement. Complete proteins are the go-to,

because they have all 9 essential (aka. “indispensable”) amino acids. Collagen hydrolysate, which has all essential amino acids except phenylalanine, has seen a resurgence in popularity as an almost-complete protein that can give you similar gains in muscle mass while also being a superior choice to support collagen health. This is for a few reasons:

- Collagen is very high in **glycine** (about 20% glycine, or about 3 grams in every scoop of Resync), which is one of the three amino acids that make up creatine - a protein known for its crucial role in generating short bursts of powerful energy. Glycine is also a crucial part of glutathione, your master antioxidant, and has been clinically studied as a sleep aid and cognitive enhancer.
- Collagen is high in **arginine** (one serving of Resync provides more than 1 gram of arginine), which is an amino acid that’s been shown to enhance performance by supporting muscle repair and growth.
- Collagen has leucine and the other **branch-chain amino acids** valine and iso-leucine (6.8% by weight in Resync), noted as a fuel for muscle cells that enhance muscle protein growth [Oertzen-Hagemann et al. 2019].
- Collagen peptides (“small proteins”) tend to be smaller than proteins from other sources like whey. Being smaller, collagen has a higher concentration of nitrogen which can be used to build up more proteins on a gram to gram basis [PEPTAN 2019b]. The particular peptides in collagen can also stimulate immune cells to produce more collagen.

For example, take a study that involved 12 weeks of a daily, 15-gram serving of collagen hydrolysate that was taken after a full-body resistance-training workout meant to maximize hypertrophy (“muscle mass”) [Oertzen-Hagemann et al., 2019]. The group who took the placebo supplement gained weight by the end of the study, including muscle and fat mass. **People taking collagen every day gained almost four times as much fat-free mass (ie. muscle and connective tissue mass) as the people taking a placebo**.

> People taking 15 grams of collagen every day gained almost **four times as much fat-free mass** (ie. muscle and connective tissue) as the people taking a placebo.
>
> Oertzen-Hagemann et al., 2019

A larger study confirms these results [Kirmse et al., 2019]. A similar regimen of 15 grams collagen per day for 12 weeks combined with strength training resulted in both groups gaining weight and strength, but the **people taking the placebo gained fat mass while the people taking collagen trended towards gaining more fat-free mass**. The authors suggest that, in a state of protein depletion like after an intense workout, supplementing with collagen may be as effective as other protein supplements.

Collagen and Hunger

To achieve your body composition goals, keeping up with a sustainable, healthy diet is just as important as supporting your exercise goals. Any supplement that claims to get you fast, effort-free weight loss is definitely a scam, but despite that you *can* use science-backed tactics to maximize your dieting success. Taking collagen is one strategy that can help keep you full for longer and makes that buffet line seem a little less appealing.

Researchers at Maastricht University in the Netherlands tested the satiating ("fullness") effect of collagen by giving research subjects a breakfast with 10% or 25% of the calories from various protein sources [Veldhorst et al., 2009]. They tested gelatin, alpha-lactalbumin (an isolated milk protein), whey, casein, or soy, among other fortified proteins, and found that **those who had gelatin with breakfast ate 20% fewer calories at a lunch buffet compared with those who had whey, casein, or soy**. The study also showed that gelatin led to 40% lower hunger ratings three hours after breakfast than many of the other proteins tested. Substitute a few of your breakfast calories for flavorless collagen, and you'll get the long-lasting benefits of a functional food that goes to work on your hunger!

> Those who had **gelatin** with breakfast ate **20% fewer calories** at a lunch buffet compared with those who had whey, casein, or soy.
>
> Veldhorst et al. 2009

Collagen for All Ages

Early collagen research focused on the potential benefits for older adults in preserving muscle mass and treating osteoarthritis [Garcia-Coronado et al., 2019]. The promising results set the stage for investigations on active people of all ages. Since collagen levels decrease by about 1% per year starting in your 30s [Castelo-Branco et al 1994], researchers wanted to test whether supplementing with collagen alongside a 12-week strength-training program would help minimize losses and improve function into old age.

In one study, a group of older men (average age of 72 years) **who took collagen gained more muscle and lost more fat than those taking the placebo**, although the results were less pronounced than the results from studies done in younger adults [Zdzieblik et al., 2015]. A key difference from the studies done with younger, fitter adults is that **this study showed a clear advantage in muscle strength for the seniors taking collagen**.

Seeing that these results are so consistent, you probably won't be surprised to learn that another study showed the **same benefits for a large group of women 18 to 50 years old** [Jendricke et al., 2019].

Another issue faced by older adults is loss of bone strength. Natural decline of collagen levels is closely linked with loss in bone mineral density - which is no surprise since your bones are about 20% type 1 collagen. Decreased collagen and expressed bone density can lead to a higher risk for falls and broken bones among older people, the second largest cause of accident-related injury in the world. However, promising new science gives hope to people who want actionable steps to help preserve bone strength. A recent landmark study showed that simply adding 5 grams of a collagen peptide, similar in quality to Resync's, every day for a year can lead to substantial improvements in bone mineral density for post-menopausal women [König et al. 2018]. Simply making a new daily habit of taking collagen can provide your body with the raw materials and the stimulus to use them so you can rest knowing that you're doing the best for your longevity.

How To Optimize Sports Recovery and Prevent Injuries With Collagen

Recovery might be the least glamorous and most neglected aspect of a training regimen. You hear about the latest high-impact workout, the diet trends that go up and down, the gear to help you perform your best, but nobody really wants to hear about how they should be taking a break and resting.

Collagen peptides not only support muscle growth and joint cartilage, but also strengthen your connective tissues and promote flexibility. Because of these functions, they are perfect for supporting your performance and rejuvenation, they can reduce the risk of injuries, and they may accelerate the recovery process and prevent damage in the first place [Raindom E. et al. 2016].

When you're injured, it's easy to wish you had tried harder to keep up your health. But it's hard to justify giving your body the time and nourishment needed to fully recover when things aren't so bad and you need to up your game *right now*.

We'll explain how to optimize your recovery so that you can get back to doing what you do to get fit and stay healthy, ASAP. First, we will look at the short-term recovery from muscle soreness and fatigue. Then we'll go into long term recovery from injuries and preventing them in the first place. The highest-level athletes understand how to optimize their recovery cycles, do you?

Taking a hint from decades of research on treating osteoarthritis [Garcia-Coronado et al., 2019], and a history of use in speeding surgical recovery [Gans et al 1977], athletics researchers are increasingly certain that collagen peptides can be used to treat and prevent connective tissue injuries in athletes. If collagen ranks with other proteins in optimizing body composition, collagen leaves them in the dust when it comes to helping athletes get their game back after an injury. A recent study performed at Newcastle University in the United Kingdom is the first to shed light

on the specific role collagen peptides have in sports recovery [Clifford et al., 2019]. Let's walk through how they put the collagen peptides in Resync Your Joints to the test.

The study was just about the best quality study possible. It was a double-blind, randomized, placebo-controlled trial involving 24 active young men that tested **20 grams** Peptan against a placebo taken in two servings. The people in the study had 10 grams of collagen or maltodextrin in the morning and 10 grams of the same in the evening for a total of 9 days. Participants took their assigned supplements for 7 days, so it had a chance to take effect and then they had a workout session of **150 drop jumps** (ouch!) on day 7. If you've done these before, you know it's an intense exercise that causes significant muscle damage and results in major gains in total ability - once you recover from being so sore! Performance (measured as a maximum jump height) and muscle soreness were taken at baseline (7th day of supplementing), just before the exercise (pre-exercise) and right after (post-exercise), as well as 24 hours and 48 hours after the session.

Can you guess what the differences were? You might think: more pain, more game, right? Maybe it's time to bench that saying because the results point to a new paradigm: "Better recovery, better performance".

Take a look at the data yourself. Here's figure 2a figure taken from a press release of the study, which shows the difference in muscle soreness between people taking collagen and those taking the inactive supplement.

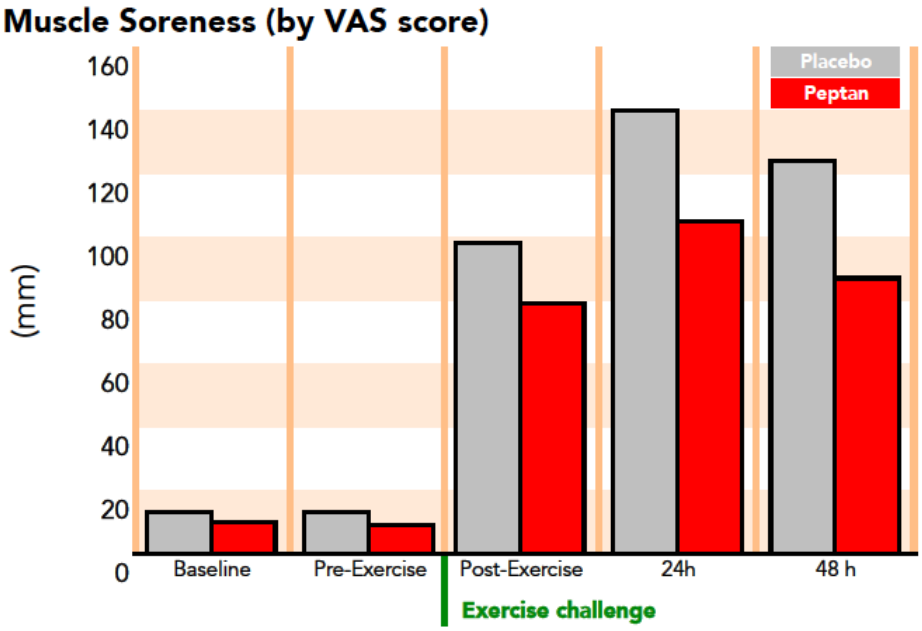


Figure 2: Muscle soreness was recorded on a VAS scale for pain after the performance of a squat (90° knee flexion) before and after a session of intense exercise by 24 participants supplemented with either Peptan or a placebo.

And here's a look at the difference in performance between the two groups over time.

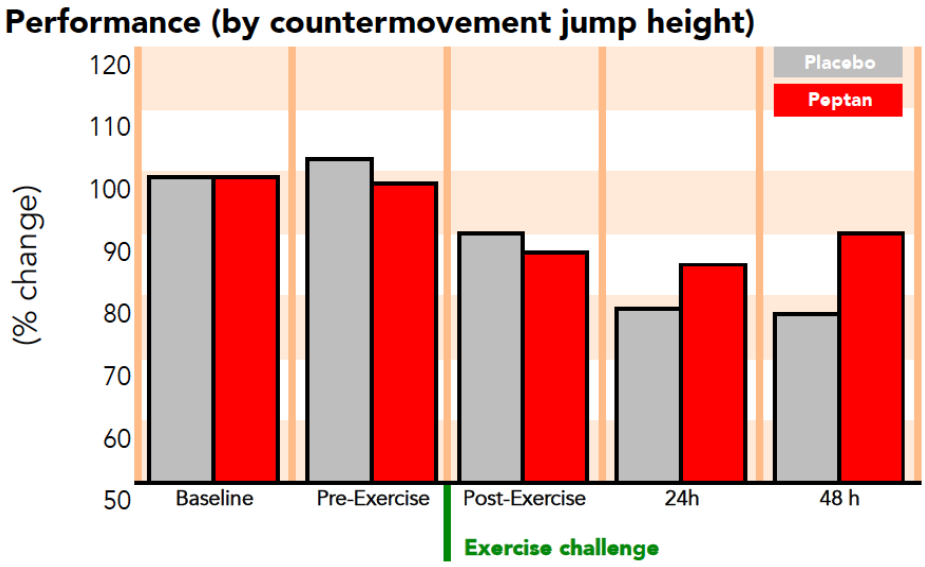


Figure 3: Performance was measured by the height of a countermovement jump (knee flexion of 90° and jumping up as high as possible) before and after a session of intense exercise in 24 participants supplemented with either Peptan or a placebo.

As you can see, the results of the study were promising. Performance was pretty much the same while the participants were just going through their day-to-day activities. But when the recovery process was triggered after an intense workout, **the collagen used in Resync clearly allowed the participants to get back their performance sooner and with less pain**. Ever heard of delayed onset muscle soreness - that soreness that keeps on giving 3-days after a particularly intense workout? Well, more pain isn't more gain. If I take Resync and I'm able to get back to squatting my max while you can still hardly sit in a chair, who's on track to win the next comp? Try it and you'll see the difference.

Another recent Rousselot study looked at recovering from exercise using the collagen in Resync used **15 grams of collagen peptides per day** in orange juice for 24 weeks [Peptan, 2019a]. The results haven't been published yet, but preliminary data has been released. They show a slight decrease in joint pain, especially in the knees, but also in the arms, shoulders, and hands during and after physical activity. The people in the study even reported just generally feeling better in the quality of life questionnaire. These findings align with the benefits seen in other research: supplementing with the collagen peptides in Resync can offer benefits in injury prevention, tissue repair, and muscle recovery. Resync itself provides 100% of your daily vitamin C needs from aronia berry, so skip the sugar and try the mouth-watering passion fruit flavor of Resync in water to see these benefits.

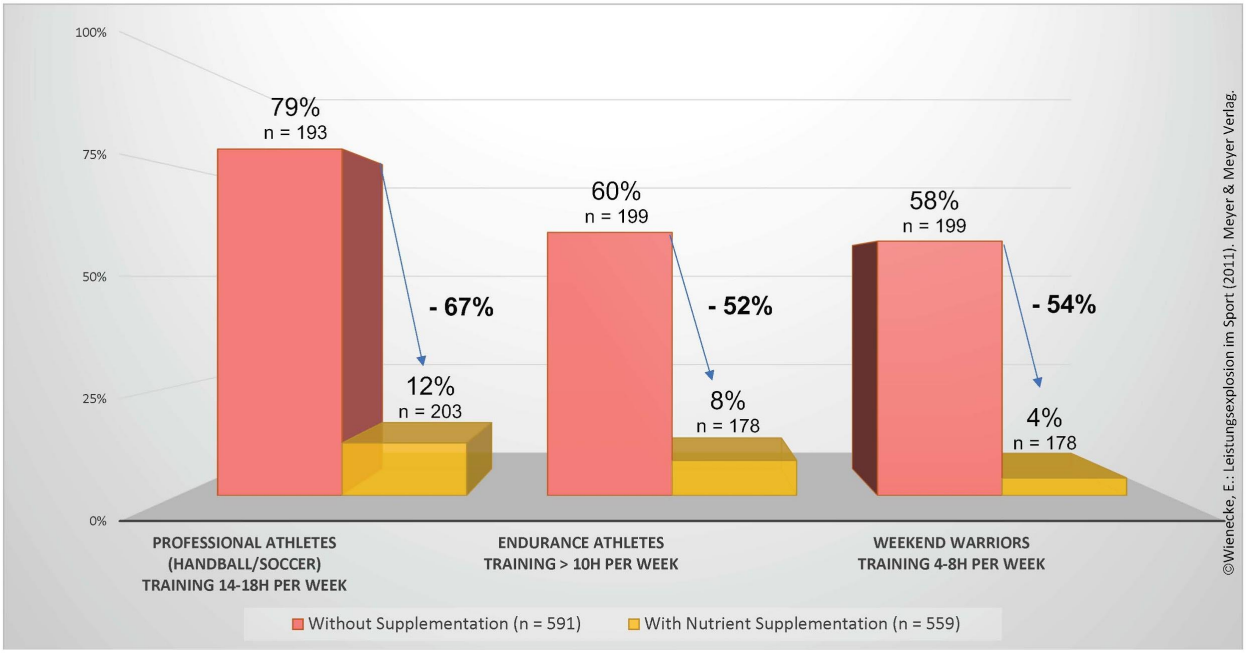
> The collagen used in Resync clearly allows physically active people to get back their **maximum performance sooner,** and with **less pain**.
>
> Clifford et al., 2019

The studies we just covered are on the cutting edge of nutrition science, with large samples of people put through the most rigorous studies science has to offer, using the exact same premium-quality collagen in Resync's formulation. You can't get better confirmation than that!

Few companies spend the money on clinical trials to test the quality of their ingredients, which is why we've taken so much time to look at the results from the clinical trials done with our product. Other brands might cobble together a look-alike product to ride on the successes of others, but at Resync we believe in using only the ingredients that have clinical data in human beings to support their efficacy. The collagen in our product, Peptan, has been tested with outstanding success by university and product specialist researchers. Now let's look at the other international research compared to our results.

Professor Dr. Elmar Wienecke was one of the first scientists to systematically examine amino acids profiles over a long period of time in more than 1500 athletes, including professionals [Wienecke E. 2011]. Many of the individuals had significant deficits and did not have sufficient levels of amino acids. As a result of these findings, the athletes adjusted their diets in accordance with the German Society for Nutrition guidelines to achieve an optimal supply of amino acids. However regardless of following this diet, a substantial number of participants continued to complain of discomfort in tendons, ligaments and musculature. A selected group was then given a personalized amount of collagen peptides, enriched with arginine and BCAAs. Amino acids levels in the athletes who had received a sufficient amount of collagen peptides rose to the optimum level. At the same time, recovery and regeneration improved after training, and most importantly, discomfort in connective tissue like tendons and ligaments was significantly reduced (see figure below).

Fortified Collagen Peptides Decrease Pain and Discomfort Among All Levels of Athletes



The number of athletes at all performance levels who feel pain and discomfort decrease substantially after consuming enough protein in their diets and taking a collagen peptide supplement fortified with arginine and branch-chain amino acids.

Still other studies confirm the benefits of collagen. In student athletes with long-standing joint pain at Penn State, taking 10 grams of collagen hydrolysate every day for 6 months led to an approximate 10% reduction in perceived joint pain while walking and while standing. When a doctor was doing the pain evaluation, the results were even more impressive with **the collagen supplemented group averaging a 14% to 17% decrease in pain** [Clark et al., 2008].

For athletes who have had chronic joint pain, the issues are often triggered by an initial injury. In a sample of athletes with this kind of chronic ankle instability, **5 grams per day for 6 months resulted in more than 20% increase in foot and ankle stability** metrics [Dressler et al., 2018].

A study of 139 athletes at the University of Freiburg showed that just 5 grams of collagen every day for 3 months also led to significant improvements. **Athletes whose knee pain was triggered during physical activity felt a 38% decrease in their pain during activity when taking collagen hydrolysate.** Sports-related symptoms diminished significantly, and ice packs, messages and pain gels were used less frequently. This lower dose didn't result in significant pain reduction at rest, which suggests that you have to take more collagen for longer to get the full benefits [Zdzieblik et al., 2019].

The last study we'll cover tested the lowest effective dose of collagen peptides. At only 2.5 grams of collagen hydrolysate per day for 6 months, patients with chronic Achilles tendinopathy

(an overuse condition in the heel) saw smaller benefits. Even at this low dose, **runners saw a 12% to 18% improvement in their symptoms** and many more were able to return to running after supplementing.

> Supplementing with 2.5 to 10 grams of hydrolyzed collagen every day for 3 to 6 months has been shown to decrease joint pain during activity by 10% to 38% and improve mobility by 20%.

The benefits of taking a collagen supplement are so clear that the International Olympic Committee pointed to hydrolyzed collagen peptides as a beneficial sports supplement with enough data to back them up. Based on an in-depth review of the scientific literature, **the International Olympic Committee suggests that hydrolyzed collagen may increase collagen production and decrease joint pain** [Maughan et al., 2018].

The conclusions from these international efforts are that **Resync's collagen helps accelerate recovery from muscle damage after exercise**. Since collagen is a key component that wraps muscle fibers in a functional, protective sheath, supplementation might either prevent damage or allow muscles to repair more quickly. Either way, these results show a dramatic pain-killing and anti-inflammatory effect. The positive effect is seen in completely different populations, from older women with osteoarthritis [Jiang et al., 2014] to top-tier athletes with chronic ankle instability [Clark et al., 2008]. Across a spectrum of uses, from preventing injuries to improving connective tissue health to reducing pain, there is ample clinical research to support the regular use of collagen. The research backs up our motto: "An under recovered athlete becomes an injured athlete™", so stop falling to your weaknesses and try Resync to rise to your potential.

> The International Olympic Committee suggests that 10mg of hydrolyzed collagen with 50 mg of vitamin C daily may be a low risk way to increase collagen production and decrease joint pain in athletes.
>
> Maughan et al. 2018

Collagen and Recovery: Fine Tuning and Perks

Besides it's obvious role in supporting connective tissue recovery and resilience, there are a few other ways that collagen can help you recover your best. From incidental perks of collagen itself to natural products that can enhance its effectiveness, there are a few more reasons why collagen should be as regular as stretching in your daily recovery routine.

Glycine: The Mind-Enhancing Amino Acid

Most protein you eat only gives you a small amount of glycine. Technically speaking, your body can make enough of it on its own to support daily functions, so why should you care so much about it? Based on detailed calculations, how different our prehistoric diet was from what we eat today, and the high rate of glycine-related issues in the modern world, some scientists think that we **humans aren't able to make enough glycine to function our best** [Meléndez-Hevia et al., 2009]. This low level deficiency results in bone, muscle, and joint injuries, poorer sleep, brain fog and mental issues, and possibly even insulin resistance.

The protein in collagen, however, is about 20% to 35% glycine. It is soluble in both water and fat, meaning it can get into your muscle cells and brain cells more easily than other larger proteins or natural supplements. The benefits for your brain are significant. Glycine has a calming effect on over-excited brain cells, allowing you to focus in on what you need to and remember what you want to. It can be turned into serotonin - the so called "happiness hormone" - to help regulate your mood and give you a boost when your body is just saying no to training. Don't we all have those days? Taken at night, your brain can turn it into melatonin - the sleeping hormone and powerful antioxidant - to help regulate your daily sleep-wake cycles. Glycine is so effective that it is clinically proven to help people with sleep issues without causing grogginess the next day [Bannai et al., 2012; Yamadera et al., 2007].

Natural Nitrates Synergy

Dietary nitrates (present in Resync Collagen and Resync Recovery Blend) have seen a surge in popular interest thanks to research on their range of beneficial effects. We'll dive deep into that when we explain what's in the Resync Collagen Blend and why, but for now we'll say that nitrates have been shown to have a range of beneficial vascular effects, including:

- Enhancing exercise performance in healthy individuals
- Improving function of the blood veins
- Suppressing inflammation and triggers of oxidative stress.

Each of these positive roles are due to the way nitrates get turned into the crucial signalling molecule "nitric oxide" [Lidder and Webb, 2013]. Combined with the helpful effects of nitrates on inflammation, the cardiovascular system, and athletic function, a collagen supplement is even more able to work wonders on your connective tissue health.

There are a few other ingredients that work in tandem with collagen and natural nitrates to optimize your recovery and performance. Our blend of hydrolyzed collagen peptides is

specifically tailored to support performance and the recovery process by targeting inflammation and muscle soreness, endothelial health, and oxidative stress. Resync Your Joints is different than any other product on the market, keep reading to see why.

Collagen Supplements: Myths and Misconceptions

We've been around the field a time or two, and we've heard every reason why you might think collagen is just another nutrition fad. For a supplement that's been around in one form or another for hundreds (if not thousands) of years, has dozens of high quality scientific studies to back it up, and has thousands of "N of 1" positive results, it would be irresponsible of us to let those myths keep going. We get it - doctors, dietitians, and coaches don't have the time to stay up to date on the latest research - so we'll lay out the evidence clearly for you to make your own decision and provide your healthcare provider with the evidence they need to make good clinical judgements.

Hydrolyzed collagen peptides are no better than traditional gelatin and collagen, so why bother with the "fancy" stuff?

Simply put, the hydrolyzed collagen used in our formulation is specifically tailored for maximum benefit. You might not expect much out of *your* supplement, but we expect nothing but the best.

Gelatin, collagen and collagen peptides are made, as you might expect, from the same collagen-rich sources - mostly the connective tissue of cattle and pigs, and sometimes from fish as well. These are parts of the animal that humans had been eating for millennia, and "generally recognized as safe" by the FDA, but look around and you'll see that collagen is almost completely absent from modern diets.

Enter the latest evidence-based supplement trend: collagen.

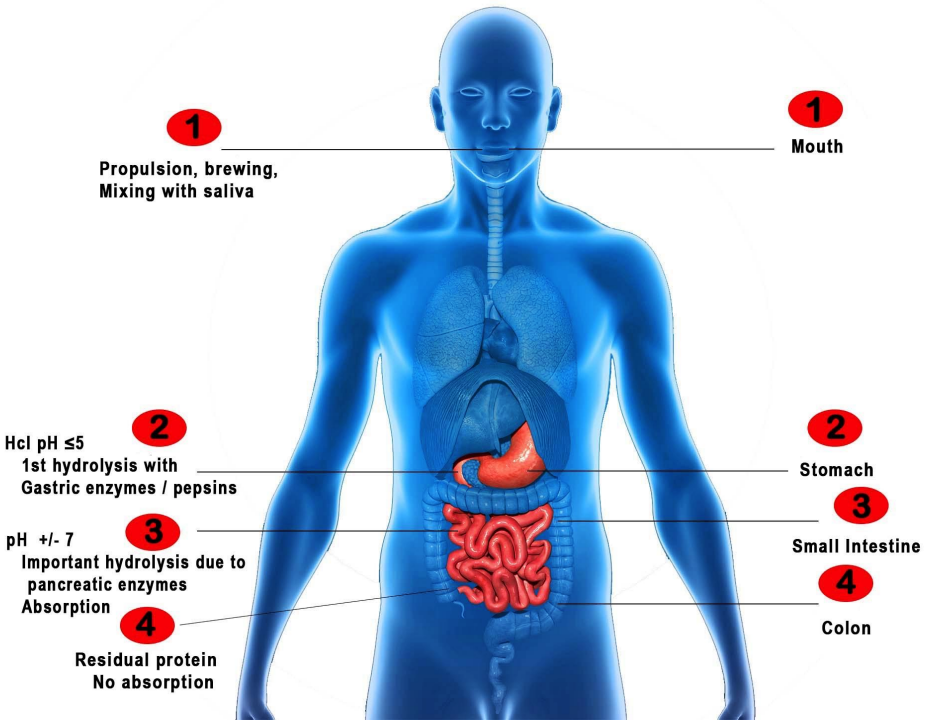
The history of collagen as a supplement goes back at least hundreds of years: it started with gelatin as a health food supplement in the 1800s. But compare the effectiveness of old-school "gelatin" supplements with the next generation of "hydrolyzed collagen peptides", and you'd wonder why anybody would be eating the same old supplement from 200 years ago.

What's the difference between gelatin and hydrolyzed collagen peptides?

The main difference between intact gelatin molecules and denatured, hydrolyzed collagen peptides is their size, and that makes a world of difference when it comes to how effective your supplement is.

Collagen molecules - like the collagen in gelatin - are larger. They have to be broken down in the gut before they can be absorbed and used by your body. That process can cause more bloating, indigestion, or straight-up pain than hydrolyzed collagen peptides [Ohara et al. 2007].

Our collagen peptides are collagen **molecules that have been broken down** with enzymes (**not heat!**) into smaller, water-soluble pieces. **Collagen peptides are more "bioavailable"** - meaning your body can use them more easily because of their simple structure. The crucial glycine, proline, and hydroxyproline-containing peptides are 18% more absorbed in a hydrolyzed collagen than in a non-hydrolyzed source [Skov et al., 2019], which translates into more peptides that your joints and ligaments can use for strength and recovery.



Fast digestion, rapid absorption, and effective utilization of hydrolyzed peptides make it easier for your body to regenerate your connective tissue and health. Add in the antioxidant support and natural anti-inflammatories of our collagen blend, and you can see why our formulation is used by top-level athletes.

People have made their own gelatin for centuries, and even today "bone broth" is trendy again. Bone broth is a great source of collagen, but it is difficult to get a consistent amount of collagen peptides in your gelatin and even more difficult to know how much you're getting. In fact, prominent collagen researchers wanted to get to the bottom of this and tested dozens of different ways to make bone broth with a number of collagen supplements and the title says it all: "Bone Broth Unlikely to Provide Reliable Concentrations of Collagen Precursors Compared With Supplemental Sources of Collagen Used in Collagen Research" [Alcock, Shaw and Burke 2019]. I guess that settles that!

Additionally, the most rigorous researchers use collagen hydrolysate as their collagen to prove clinical benefit. Those researchers want to make sure they're delivering the best product possible to their study participants; if you wanted to see those same clinical benefits, why wouldn't you want to do the same?

Add to this the convenience that hydrolyzed collagen molecules dissolve in liquids easily and that they don't change the texture or flavor of foods to which they're added, and you can see why collagen hydrolysate should be your go-to collagen source.

Cartilage doesn't have a blood supply, so it's impossible for collagen to help with cartilage issues.

Even though your body can make its own collagen, aging and injury slows down the flow of nutrients to a trickle of what it was when you were young and still developing. You might be familiar with the fact that cartilage does not have blood veins to feed it. How then can nutrition affect your cartilage?

It is true that deep in your cartilage there are no blood veins. Even your tendons and ligaments - the connective tissue that's more on the surface - need to be put in motion with exercise for in order to get the nutrients from you blood. But, it's *because* of this lack of internal circulation that it is even more important for you to nourish your body with anti-inflammatory foods, good exercise, and the building blocks your body needs on a regular basis to most effectively build healthy connective tissue.

The surface of your cartilage is the most important part when it comes to pain-free, mobile joints. This outer layer *does* receive nutrition from your blood veins - scientists have even been able to image the gradual cartilage-building effects of a collagen hydrolysate supplement in humans [McAlindon et al., 2012] - the nutrients aren't *delivered* per se, they seep through the empty space between cells.

Think of cooking a pot of noodles in salt water. There's no circulatory system to get the water into the dry pasta: the water gets into the pasta passively and takes the salt along with it. Leave that pasta out overnight, and it will get dry and crispy (yuk!) but it will stay salty.

In a similar way, the fluid surrounding your joints is full of nutrients your cartilage needs to be healthy. Like the salt in the pasta water, those nutrients pass through layers of cartilage passively. If the stream of nutrients changes - if it becomes too high in blood sugar or is filled with inflammation from arthritis or an injury - the cartilage soaks that up too. The difference is that the fluid doesn't dry up until significant damage has already occurred (think about the lower hyaluronan levels in joints damaged by osteoarthritis). When good nutrition your joints crave isn't available, the passive process goes both ways, and the nutrients that were once there simply seep out in the opposite direction.

Your cartilage can't determine what nutrients it takes from the blood, it's just exposed to whatever passes through. With this in mind, it's all the more obvious how important the *consistency* of a healthy diet and lifestyle is. Maintaining collagen health isn't "one and done". Collagen is built over the course of months and years, so a steady flow of proper nutrition is required to maintain its best function.

Let's just settle this finally with a study of studies done on the use of collagen for treating the symptoms of osteoarthritis by García-Coronado and his team in 2019. Recall that osteoarthritis is an inflammatory condition in which the tissue is not able to regenerate faster than it's damaged. The research team found 5 very high-quality studies with a total of 519 participants and showed a 4% to 19% improvement in symptoms. If all these studies agree, and all the other studies we've already looked at in athletic populations agree, then it is safe to say that supplementing with collagen can positively impact cartilage health.

Collagen is not a complete protein, so it's dangerous to your protein balance to supplement with it.

If you're worried about not getting enough tryptophan - the only essential amino acid missing in collagen - you should know that the FDA recommends that every American should get 33 milligrams per day,. Just to be safe these numbers are high, so that they cover 98.5% of all Americans' possible needs. If you eat any animal products at all, you'd be safely getting more than enough tryptophan in a single serving every couple of days. If you're vegan, you need less than one serving per day of beans, nuts, seeds, or legumes to hit your mark.

One analysis has even shown that you could get up to 36% of your protein intake from supplemental, collagen - well above the recommended 15g collagen per day - and you'd still meet all your essential amino acid targets [Paul et al. 2019]. So toss those worries out along with your protein supplement and try out the multi-functional benefits of collagen!

Vegan collagen builders and amino acid supplements are just as good as supplementing with hydrolyzed collagen.

Your body can produce collagen on its own, but even if it can, that doesn't mean it will work best without added support. Whether you don't always know how to optimize your connective tissue health or you've suffered an injury that's turned into a chronic problem, there are a number of evidence-based reasons to supplement with hydrolyzed collagen.

"Collagen builders" are supplements that mimic the protein and mineral profile of real collagen, but are made from amino acids (the smallest proteins) and peptides (the second smallest proteins, same size as hydrolyzed collagen peptides) from plant sources. Many claim to be as good or better than real collagen, however the science to back that up is suspiciously missing.

Some researchers suggest that just getting enough glycine [Melendez-Hevia et al., 2009] or proline [Barbul et al., 2008] might be enough to help build stronger bones and collagen, but it probably wouldn't be as effective as a protein source with all the amino acids in the peptide form that your body uses best. How can we know for sure whether amino acid or peptide-based formulations are able to deliver the same benefits of a hydrolyzed collagen?

In fact, the only evidence we have is a single study done with mice [Oesser et al., 1999]. Researchers compared collagen hydrolysate (collagen broken down into small proteins, about 2-3 amino acids which contain proline and other amino acids) to proline alone (a single amino acid that makes up 23% of collagen). When animals were given either of these formulas, the collagen hydrolysate and the proline both ended up throughout the body except for one place. Can you guess where?

The only place that the single amino acid proline *did not* get to and collagen hydrolysate did was in **cartilage**. That means that when it comes to your joint health, natural collagen may be the superior choice.

Other studies show that collagen peptides are absorbed and transported to where they need to go intact - they are not entirely broken down into individual amino acids [Kawaguchi et al., 2012]. This means that the excessively processed plant-based collagen builders have to go through an extra, energy-consuming step to be used effectively.

Besides the absorption and distribution of collagen peptides, collagen peptides cannot be easily replaced by other proteins because of their unique effect on collagen cell function. Collagen peptides appear to have a unique way of signaling collagen-forming cells to stop inflammatory processes and alter the environment outside the cell to support collagen production [Zhu et al., 2007; Schadow et al., 2017].

All of this evidence suggests that mammals use collagen peptides better than individual amino acids.

Contaminants In Plant-based Proteins

Besides the physiological advantage that collagen peptides have over other knockoff products, there's a safety advantage when you use a "NSF Certified For Sport" product like Resync. It may only be four words, but it reflects sincere dedication to the very highest quality and represents the highest safety certification a supplement can have.

To show why such a rigorous standard is necessary, let's look at some data from the Clean Label Project. This nonprofit does unbiased quality testing on popular products so that you can know what's actually in the products you buy. In their recent study, they tested 137 of the most popular protein powders off the shelf and the results are scary enough to stop you from buying another uncertified protein supplement ever again. Here's some of the major issues they found:

- Organic products had **twice as much lead, arsenic, and cadmium** levels on average than non-organic products, but even many of those had levels that violated safety standards
- Egg, whey, and other animal-based protein powders generally tested cleaner than plant-based powders.
- With one-exception, all plant-based protein-powders had poor overall safety ratings when it comes to safety.

What is their conclusion? That

> "consumers can ultimately drive positive change in the quality of protein powders. Ask questions - and get the answers! Call the manufacturers of the products you purchase and ask them about their ratings. … Ask if they screen their products for heavy metals, BPA/BPS, antibiotics, and the other environmental & industrial contaminants. Demand real answers, not empty reassurances."

Feel free to call us up and ask us, but I'll tell you now: we've already done the heavy lifting for you. NSF sport certification means that every year our products are tested for heavy metals, biological contaminants like mold, pesticides and herbicides, banned substances and drugs, and it ensures that what's on the label is actually in the bottle. You might not have thought it was that big of an issue before, but the clean label project (and other quality studies that report similar findings) shows that *quality matters*!

The MLB, NHL and CFL are only legally allowed to recommend products with NSF certification. Don't settle for contaminated, imitation products. Choose Resync Collagen, which sources quality-certified, predominantly grass-fed cattle [Peptan 2019c], and has the real research and the highest certifications that the other brands just don't match. We'll stick with what we know works until the other brands catch up!

Alright I'm Convinced: Collagen Can do Everything!

Not so fast. Collagen is a powerful tool, but there is a whole toolshed of ways to take care of your body, the best being enough rest and a good diet. Even then, sometimes you have to seek a medical opinion.

Advancing age, over-training, routine wear-and-tear, and processed foods are all factors that can start an inflammatory process that saps your recovery process, leads to joint and connective tissue problems, and lowers your performance, regardless of what you're supplementing with. Both collagen and elastin are easily damaged by inflammation [Adair-Kirk and Senior 2008], and an inflamed connective tissue system negatively affects the way you move, perform and recover. You will want to seek the help of a professional if you're experiencing any of the following in your training:

Joint pain is the classic sign of overuse. Joint pain can occur anywhere two pieces connect in your body. It might pose a consistent problem, or it may occur only occasionally. At this level of inflammation, research has shown that collagen in combination with regular exercise can be a powerful tool, but you will still need the expert opinion of a medical professional.

Joint swelling: Swelling may occur for two main reasons: either (1) "synovitis", where the lining of the joint, known as the synovium, swells or (2) the synovial fluid increases in volume, causing fluid to leak into places where it doesn't belong. The skin surrounding a swollen joint becomes red, puffy, painful, and warm. Generally, joint swelling may occur and persist for over three days or longer and may come up multiple times a month. It can happen in any joint, but is

especially common in the elbows, knees, and ankles. What should you do with this level of inflammation?

Take a break and pay attention to your diet - try to eat anti-inflammatory foods (more on that next) as much as possible. Additionally, you will definitely need to see a physician to help you get back on track!

With **Resync Collagen Blend - Resync Your Joints**, we help create resilience by supporting collagen density and a healthy, strong connective tissue architecture. Resync provides the essential building blocks your body needs and bioactive natural ingredients to make sure those ingredients get to where they need to go to support healthy recovery processes.

The 3 Best Ways to Eat and Support Your Body's Natural Production of Collagen

Just because a supplement is optimized, that doesn't mean it will save you from the consequences of poor decisions. We can take control of some things in our lives to make up for those things we can't change, and the first place to look is your diet.

We don't have to describe that finding the right diet is no simple matter, I know I've felt confused trying to find a good eating pattern! But we can break down the guidelines for a healthy diet to optimize your collagen and your connective tissue health so you can take the steps to optimize your diet in a way that works for you. If you're looking to set a performance-level baseline, here's how!

1. Center in on what your anti-inflammatory, antioxidant diet looks like.
2. Get enough of the right vitamins and minerals.
3. Eat collagen protein to make better collagen proteins.

1. Center In On What Your Anti-inflammatory, Antioxidant Diet Looks Like

Everybody's talking about inflammation these days, and for good reason! Some experts consider out-of-control oxidative stress and inflammation as the common link between every chronic disease we know of. Chronic inflammation - day after day at a level you're body can't manage - is definitely a cause of cancer, diabetes, heart disease, and possibly even aging, among others. But you're probably more familiar with the inflammation of an injured joint or the full-body soreness after a particularly intense workout. In fact most exercise causes increased oxidative stress too.

There are some differences between these types of inflammation, but the common line between them is this: if the inflammation overpowers your body's ability to handle it, it leads to a maladaptive process (aka. bad adaptation, like insulin resistance or limited mobility after an injury, which serves a function but doesn't contribute to your overall health). Exercise increases oxidative damage, but it increases your body's ability to manage that damage even more. If you can raise your whole antioxidant system without maxing your body's ability to handle it - essentially strengthening your antioxidant "muscle" - then you'll be on track to maximizing the gains you can get from a workout and minimizing the potential of an inflammatory injury.

Let's take muscle soreness as an example of inflammation. People have probably been trying to prevent and treat muscle soreness since the dawn of humanity. Modern methods include pharmaceuticals like non-steroidal anti-inflammatory drugs ("NSAIDs" ibuprofen and aspirin) [Morelli et al., 2017], branched-chain amino acid (BCAA) supplementation [Ra et al., 2013], antioxidants and vitamins (e.g vitamins C and E) [Ranchordas et al., 2018], and several other remedies. Unfortunately, these methods do not consistently mitigate pain, have minimal or insignificant effects (ie. vitamins) [Ranchordas 2018], or they slow the inflammation necessary for getting stronger (ie NSAIDS) [Schoenfeld 2012].

The characteristics of a truly helpful remedy is not one that gets rid of the pain and inflammation, but one that increases your capacity for inflammation, speeds up the recovery process, and prevents the inflammation from overcoming your body's innate defenses. Herbal and dietary strategies to relieve pain, inflammation, and muscle soreness have garnered scientific evidence for their effectiveness recently [Meamarbashi 2017]. Using clinically tested natural anti-inflammatory agents has the advantage of avoiding side-effects of NSAIDs like gastrointestinal distress and cardiovascular complications [Meamarbashi 2017; Graumlich 2001]. Plus, when you incorporate herbal remedies into what you eat, you get to try some delicious new flavors!

Traits of an Anti-inflammatory Diet for Complete Collagen Health

It seems everybody on the internet has an opinion on what "healthy" means. Whether it's a low-carb, vegetarian, low-fat, or any other diet, there's actually plenty of research to show that each diet has the potential to help a lot of people.

One question though: are you "a lot of people"?

I thought so. You are an individual with your own unique digestive enzymes, your own microbiome, and your own genes and environment and taste preferences. I'll let you in on a not-so-secret insider tip: **there's only one "healthy" diet, and that's the one that works best for you.**

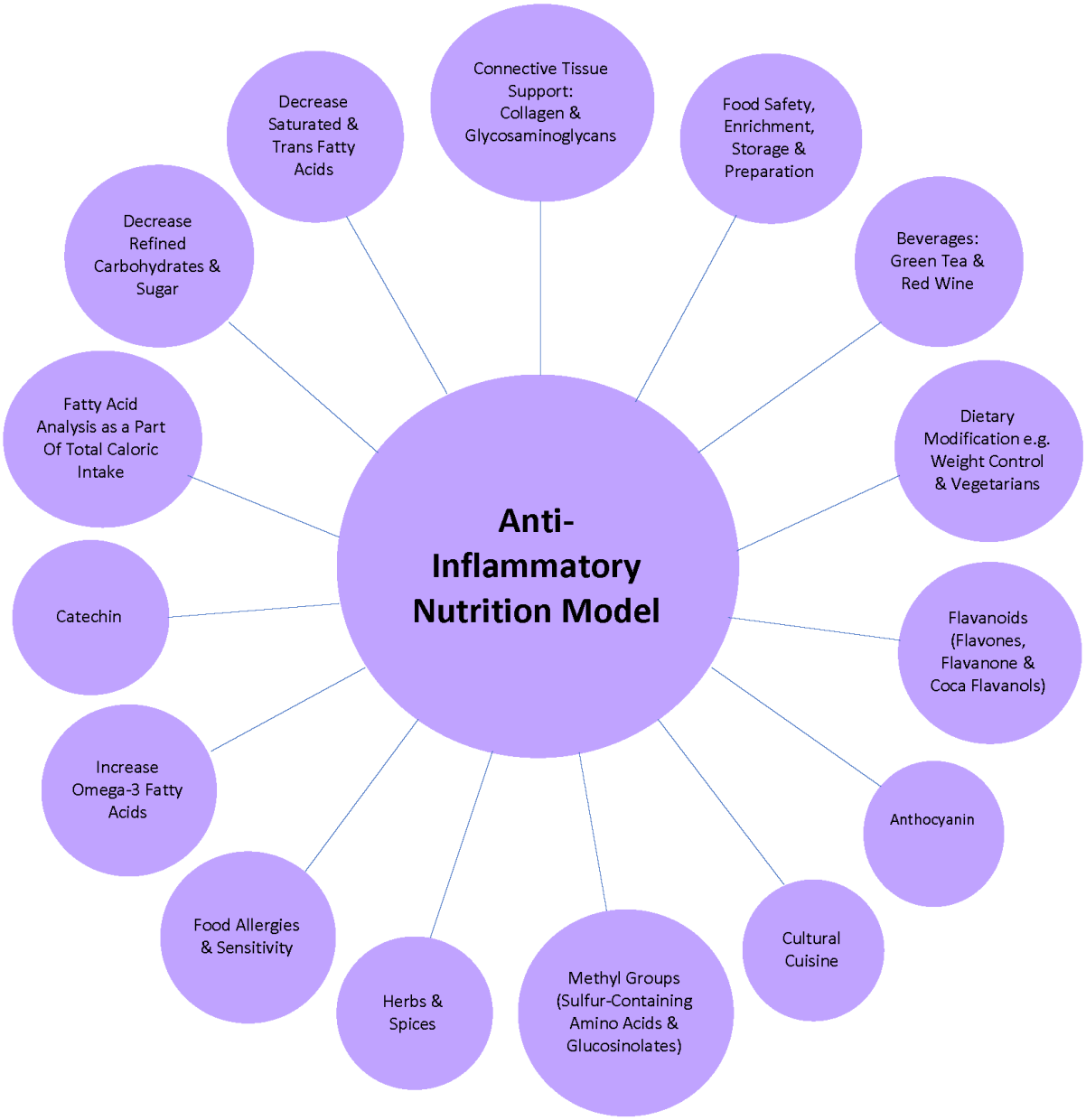
Now, just knowing that every person has a perfect diet for them isn't all that helpful. I'd eat a plateful of cookies every day if I could convince myself that that was the diet for me. The food that's available to us today is far from what belongs in a balanced diet. Plus, generations of

access to processed foods have skewed our perception of what's normal; eating intuitively can only get you so far. Our physiological hunger regulating centers are sensitive to a point, but these systems did not arise at the same time as the modern food landscape. Because of the strains that modern life puts on us (endocrine disrupting chemicals, pollution, the built environment, etc.), it has become almost impossible to "listen to your body" and understand what the best diet might look like.

But there are common elements between different healthy diets - they all have more similarities than differences. Each of them often come down to the same principles, and then each diet dresses these principles up in a different package. For example, many diets mention ratios of the three macronutrients in some way. But that's really just a piece of the puzzle. The *quality* of your macros typically makes a bigger difference than how much you eat of each. When you look at which of these diets fight inflammation and lower oxidative stress, you see that each does it in its own way, but the common thread is a **focus on good food**.

So what can we rely on? Personalized, science-backed, anti-inflammatory guidelines centered on supporting all levels of your antioxidant system - from dealing with free-radicals, to cleaning up the mess they make, to optimizing your immune response.

The Anti-Inflammatory Nutrient Model (see figure below) based on Mary and Elizabeth Hankinson's chapter in *Fascia: The Tensional Network of the Human Body* is designed to give you the best of the best when it comes to supporting your connective tissue health. So instead of counting your macros we'll show you how to count quality. What makes the difference between a carb that's good for your health or bad for your health. Which proteins should be eaten in which ways for your best body? What's a healthy fat, anyways?



Modified “The Anti-Inflammatory Nutrient Model” and based on Hankinson & Hankinson in *Fascia: The Tensional Network of the Human Body* (2017)

So, what is the anti-inflammatory diet and how you can utilize in your plan? It’s based on 3 basic tenets:

1. Lots of dietary factors like “how much”, “what kind”, and “when” all influence inflammatory processes.
2. Combinations of nutrients may amplify or offset each other’s effects.
3. We cannot rely on intuitive ideas about what’s "healthy" to determine what's anti-inflammatory.

No matter what, the way we eat and what we eat either contributes to the inflammation side of the balance or the resolution side. On the inflammatory side of the equation, there is more that causes inflammation than there are that cancel it. A diet filled with sugar, the combination of sugar and certain fats, processed foods, and too much in general all contribute to inflammation that damages your connective tissue and your ability to recover.

Carb sense

Unrefined carbohydrates are grains and seeds that haven't been overly processed. Hulling, degerming, pulverizing, extracting, fortification, and extruding might make you think of some industrial material-making process. That's because it is. Those are the steps to refine grains into your everyday breakfast cereal or so-called "energy" (aka. "sugar") bar.

Processing cereal grains is so damaging to the natural nutrients that manufacturers actually have to add back in ("fortify") some of the vitamins and minerals that were lost so that people don't get micronutrient deficiencies.

This is why "**whole grains**" and **extra fiber** belong in virtually all healthy diets. Since unrefined grains are closer to their natural state, they have more of the nutrients your body needs to burn fat, feel full, stabilize blood sugar, and promote overall energy levels.

One detail of your diet that may drive inflammation is high glycemic load. Highly processed carbohydrates like sugar and refined grains are quickly converted into blood sugar. Excessive blood sugar over a long period of time leads to inflammation of your pancreas (which can lead to diabetes) and "metabolic dysregulation" (aka. a messed-up metabolism like high cholesterol). Unfortunately, the go-to post-exercise meal is full of refined carbohydrates. If you're trying to carbo-load, we recommend unrefined grains, complex carbs, and fiber-rich vegetables as a more sustainable way to get your carbohydrates.

Want to take the next step for ultimate carbohydrate health? Go beyond unrefined carbs and grab the lowest carb options with the highest nutritional payload: **clean, red and green, inflammation-fighting veggies**.

Vegetables - especially green leafy veggies (like spinach, kale, cabbage) and red vegetables (like beets, radishes, peppers, and tomatoes) - are not only "unrefined", but they have the very highest amounts of fiber, micronutrients, and medicinal plant-chemicals ("nutraceuticals"). Getting enough fiber can translate into a healthier gut, better immune function, lower inflammation, more antioxidants, and long-lasting, clean energy. Getting more nutraceuticals is directly linked with a lower risk of virtually all chronic diseases.

If you're looking for something sweet, instead of reaching for a drink with high-fructose corn syrup, or a sugary "nutrition" bar with brown rice syrup, go for the gold with a serving or two of berries. Berries are a rich source of "phytochemicals" (natural plant chemicals). Phytochemicals like anthocyanins, polyphenols, flavonols and others have been extensively studied for their disease-fighting effects. Not only do you get to satisfy your sweet-tooth with a handful of wild

blueberries or stevia-sweetened cranberry juice, but you're also helping to prevent issues from arising before they even get a chance to start.

Healthy Fats

Healthy fat was the buzzword of 2018, and for good reason. Fat was universally marked "bad" in the low-fat diet crazes of past decades, and when the leftover calories started coming from sugar instead of natural fats, at least one culprit in the obesity epidemic was identified.

Apparently, cutting out an essential macronutrient that can help you burn fat, stay full and energized, keep you cognitively alert, and help regulate your hormone levels could somehow also be the cure for those kinds of issues.

Largely thanks to the epic-scale Mediterranean diet studies of the last ten or more years, fat is back. I'm glad we're moving past that misunderstood period of food-political history. But what does "good fat" mean? Can you just eat whatever you want now?

Saturated vs. Unsaturated

Generally speaking, if you want to keep some of the pleasures in life (Sunday morning almond croissant, anybody?) it is probably best to limit saturated fats to a reasonable level and get more of your fats from "unsaturated" sources. Cut out the refined carbs and keep insulin low, though, and it's unclear whether saturated fats carry the same damage. Low-carb diets may even be just as good for endurance athletes as any other well-formulated diet [Volek et al. 2016].

Saturated fatty acids promote inflammatory responses in the body when combined with other inflammatory triggers like a high glycemic load or oxidative stress. The effect is most obvious in your heart and blood. A high-sugar, high-saturated-fat diet wreaks havoc on your fat-transporting system, which you can see on your blood lipid panel. Research has begun to show that when you cut the sugar and any other carbohydrates, the response in some people is for the body to regulate it's saturated fat transport system in a more healthy way. If you still want to indulge in refined carbs or something sweet every now and then, it's best to limit the amount of saturated fat from animal products that you eat.

Trans fats are one of the worst culprits in inflammation. After finally seeing that industrially manufactured trans-fats were causing heart disease, the FDA banned them in 2013. There's a catch though: if there's less than one-half gram of "hydrogenated oils", a company doesn't have to report it. For this reason, you can't rely on the nutrition facts label, you must read the ingredients list itself. It is best to avoid anything with "hydrogenated" on the ingredients list. Common examples include vegetable shortening, margarine, and many types of packaged, processed "convenience" foods.

To make matters a bit more complicated, there *are* naturally-occurring trans-fats that don't appear to damage your health in the same way as man-made ones. "**Conjugated Linoleic Acid**" is one that you may have seen on the supplement aisle. We won't go into whether the

science backs up the claims on the bottle here, but we can say that CLA doesn't have the detrimental effects that hydrogenated vegetable oil does.

Fortunately, there's an easy way to tell if a fat is saturated or unsaturated! If it's solid at room temperature, take it easy and try not to eat it by the tablespoon. If it's liquid at room temperature, it's probably safe to eat it, maybe a lot of it. In fact, if it's olive oil you're drinking, you'd need to eat a liter a week to get the same health benefits proven in studies [Estruch et al., 2018]!

If you're loading up on healthy fats, all that fat takes up less space than, say, the same amount of calories from vegetables. The fullness hormones from fat are slightly delayed when compared to the immediate sensation of being full when you eat too much bread, so listen to your hunger and fullness cues when you're dousing everything in olive oil. It might be tempting to eat more fillers when you try out more oils just because it's a habit that took a long time to form. Remember that you might not feel as full now, but you'll have long-lasting energy for hours to come if you stick to it!

What the PUFA?

Besides whether a fat is saturated or unsaturated, you've also got to pay attention to what kinds of "unsaturated" fats there are. They come in a few kinds, but omega-6 and omega-3 are the most important ones.

These so-called "essential fatty acids" are so important that sometimes they're classified as micro-nutrients, not macronutrients. Their long name is "polyunsaturated fatty acids", or PUFA for short.

Arachidonic acid is the most common long chain omega-6 fatty acid, found in industrially manufactured animal products and vegetable oils. Although necessary for survival, the amount of arachidonic acid is so high in Western diets that our bodies are not able to handle its negative effects. Omega-6's are the cellular signals for inflammatory processes - which is absolutely essential when your body needs to deal with an infection or injury. But those pro-inflammatory effects turn on you when your omega-6 levels are too high too often.

To make matters more complicated, not all omega-6 fatty acids are created equal. "**Gamma-linolenic acid**" is an example of a plant-based omega-6 found in hemp seed oil which may play an anti-inflammatory role.

Omega-3s play a huge role in fighting inflammation, but they are hard to come by in a typical diet if you're not going out of your way to get them. They are typically known by their abbreviations: ALA, EPA, and DHA. ALA is converted to EPA which is converted to the most active anti-inflammatory: DHA. Omega-6's and omega-3's are used in this same metabolic conversion pathway, where **omega-6 fatty acids generally lead to inflammation while omega-3 fatty acids resolve that inflammation**.

A common example of a combination that works against you is your ratio of omega-6 to omega-3 fatty acids. When you have significantly more omega-6 fatty acids compared to omega-3's,

the omega-6's out-compete omega-3's for the same metabolic pathway and the omega-3's aren't able to be converted into their most active forms. So when you're eating too much omega-6 from refined oils, the PUFA precursors have a hard time converting to those more bioactive fatty acids like the omega-3 DHA and the omega-6 GLA.

Vegan Diets and Omega-3s

Fish is what most people think of for anti-inflammatory omega-3s. Smaller fish are lower in mercury and contaminants, so taking the time to find a brand of sardines you like is well worth the effort. Otherwise, look for wild-caught fish (which also tend to be lower in contaminants than farm-raised), and aim for a sustainably sourced form for the added benefit of taking care of your oceans.

If you're looking for other ways to knock out inflammation with omega-3s, when buying red meat, go local! The meat you can buy at a farmers market or from your local butcher are hands-down the best red meats money can buy. The omega-3 fatty acid content can be 2 times to 30 times greater in organic, grass-fed meat [Daley et al., 2010]. So rest at ease knowing that you're nourishing your body and the planet when you support your local farmer.

Don't like sardines? Don't eat meat? For vegans, omega-3's can get complicated fast.

All-natural vegan forms of omega-3s only provide a part of the benefit that animal-based omega-3's can. If you want to get technical: only 2-6% of ALA is turned into DHA in that pathway we mentioned.

Flax oil is a stellar source of the omega-3 precursors ALA and EPA. Others include almonds and nuts, ground seeds like hemp and chia, and to some extent whole grains. These omega-3's can still fight free-radical oxidants, but they don't affect the deeper immune system response to the same extent since they don't contain DHA.

Now, however, it's possible to get vegan micro-algae sourced omega-3s in the form that we all need them. Look for the "EPA" and "DHA" content when you're considering algal oils and get a quality-certified product.

Protein

Protein comes from all kinds of sources: nuts, seeds, beans, meat and other animal products like yogurt. It's hard to know whether the average person benefits more from eating more protein or from eating less protein (just another example of how your diet should be personalized to you!). However, when you put strain on your body, your muscles break down and you have to increase your protein intake to maintain optimal muscle protein synthesis.

In order to support metabolic adaptation, repair, remodeling, and protein turnover, general recommendations for athletes ranges from 1.2 to 2.0 grams protein per kg body weight per day [Thomas et al., 2016]. That means if you're a 120 pound lean running, jumping machine, you

should aim for 65 to 110 grams of protein every day; if you're a 250 pound freight train on the football field or wrestling mat, you need about 130 to 220 grams of protein every day while you're training and performing. Those numbers are a far cry from the FDA's recommended 50 to 65 grams. To make matters worse, some proteins are better than others!

Protein quality is made up of how much of the protein your body can digest and how many of the individual protein building blocks ("amino acids") that protein has.

For example:

- Eggs, dairy, and meats have all the amino acids you need in an extremely digestible form. These foods are highest in the amino acids your body uses to build muscle.
- You get more protein from eating toasted almonds than from eating raw almonds.
- Vegetarians and vegans should pay attention to which amino acids they might not be getting enough of. Generally, mix a grain with any kind of bean to get the performance benefits of a broad spectrum of amino acids.
- Overcooked, blackened, fried, and processed proteins generate free radicals, which create oxidative stress in your body and ultimately lead to inflammation and an increased risk of cancer [Bouvard et al., 2015]. Your antioxidant systems then have to deal with this damage before they're able to focus on repairing damaged tissues
- The best sources of glycine, proline, hydroxyproline, and hydroxylysine - the amino acids that make up your collagen and collagen-based connective tissues - are bone broth, gelatin, and collagen.

Building muscle is great and all - it certainly helps you show up in the world the way you like to - but if you've stayed up to date with the newest research on collagen, you might be thinking that there are other important things to pay attention to, like the health of the tissues that connect your muscles to your bones. If you're looking to enhance your total health, eat a variety of protein sources and make sure you're getting enough of the collagen precursors that help build strong connective tissue!

> There's only one "healthy" diet:
> the one that works best for you.

One example of a synergistic, amplifying combination is curcumin (an extract of turmeric) and dietary nitrates (aka.) [Disilvestro et al., 2012]. When you take natural nitrates like aronia berry, red spinach, and beet root in Resync Recovery and Resync Collagen, your blood veins become more flexible. When you take curcumin, it increases the capacity of the metabolic pathway that converts nitrates into the beneficial molecule nitric oxide. So when you take both together, one enhances the positive effect of the other, creating a total effect that's greater than its parts.

Another example: product research at The Power Blood Lab shows that high-fat meals can lower nitrate's ability to relax blood vessels. Apparently, this is because nitric oxide precursors are soluble in fat and take longer to digest.

What's more, even though organic farming practices are positively beneficial to the environment and good for our health, organic vegetables can have lower nitrate levels than conventionally-farmed vegetables [Gonzalez et al 2015].

What does that mean for you? If you enjoy a meal full of healthy fats and organic leafy greens, you might not be getting the most out of your healthy diet. If you don't have the "healthy diet" piece of the puzzle solved, then you have an even greater need to add more natural nitrates to reach your best self.

Key Aspects of an Anti-inflammatory Diet

The key choices you can make during and after your training to harness the power of healthy inflammation and combat chronic inflammation are:

- If you're looking for something to drink, instead of something sugary, try green tea or the superfood supplement Resync Recovery.
- Looking for your sweet fix? Extra-dark chocolate and polyphenol-rich berries pack in more inflammation-fighting phytochemicals per gram of sugar than any other food.
- Choose high-fiber sources of complex-carbohydrate, especially colorful vegetables, instead of simple sugars
- If you're eating other carbs, choose unrefined, healthy fats that are liquid at room temperature.
- Get your omega-3 fatty acids from flax oil, algae oil, fish oil, fatty fish, and nuts.
- Select proteins that aren't burnt, fried, or industrially processed. Your dollar goes even further when you choose wild caught and grass-fed animal proteins. If you're vegan, combine unrefined grains with beans and legumes for a complete protein source.

Once you've got a healthy baseline, now you can start to see where your body may be underperforming. We've reviewed the science to find the supplements that have clinical research to back them up, so keep reading!

2. The Supplements That Actually Work To Maintain Your Metabolism And Support Your Performance

Athletic supplement companies often hop on the next trend and push vitamins that won't do much for you. The list of glamorized vitamins for your performance goes on and on - if there's a shred of science that says it could be helpful, it has probably been sensationalized for the profit of companies and the expense of you.

It's unlikely that a single vitamin is going to provide the advertised miraculous benefits. It takes a coordinated approach that hits the problem from every angle to see real change. That's why **Resync Collagen Support** is formulated to help multiple energy-support systems, from ingredients that stimulate collagen building to the key building blocks themselves and on to the antioxidants that keep the whole system running smoothly.

There is another way to market athletics supplements, and that's 'accurately'. We reviewed the scientific literature to figure out what nutrients you need to support healthy collagen, and then we went further. What are the nutrients you need to support the systems - not just on the surface - that help keep your collagen and fascia healthy? If you want to know what nutrients work to keep a healthy, resilient system, you've come to the right place!

Support Your Collagen Indirectly

S-adenosylmethionione (SAM) is the 'universal methyl donor'. If that doesn't ring a bell, don't worry about it! All you need to know is that it plays a huge role in letting your cells talk to each other to repair damaged skin, make new cells, detoxify, express your genes… the list goes on. You can supplement with it, or you can get methyl groups in foods rich in B vitamins (see more on that below).

Glutathione is your body's master antioxidant. It's your first-line defense against toxins, inflammation, and oxidation. Although studies are mixed as to whether supplementing with glutathione will increase your own glutathione levels, there are many other ways to make your own glutathione. It might surprise you that the best of these are getting enough sleep and regular exercise. Managing stress and eating lots of colorful plants, healthy fats, and cutting out processed foods and sugar are sure-fire ways to up your antioxidant power. Read more on our 3-part series on how to enhance your glutathione here.

Methylsulfonylmethane (MSM) is a supplement that provides many of the benefits that increasing glutathione can. Studies show that it may decrease oxidative stress, inflammation, and joint pain caused by osteoarthritis [Lubis et al 2017; Clark 2007]

Support your Collagen Directly

Besides collagen itself, **chondroitin**, **glucosamine**, and **hyaluronan** are important parts of your joints and collagen-rich tissues. When your collagen breaks down, the amounts of these nutrients go down. Supplementing with each of them has been shown to offer benefit for some people with joint issues [Simental-Mendia et al. 2018; Salwowska et al. 2016]. If you think one of these might help your skin or joints, make sure to give it enough time to start working!

Support your Collagen with Vitamins

Vitamin C is the most important vitamin for making collagen. Besides being an antioxidant that can help boost your defense against certain toxins, vitamin C is required for turning proline into hydroxyproline, which makes up part of the triple helix structure of collagen that gives it its flexibility. Although a deficiency will take months of eating no fresh fruit or vegetables, a little

extra vitamin C (48mg per day or 80% of your recommended daily intake) taken with collagen has been shown to increase collagen synthesis [Shaw et al. 2017]. On the other hand, excessive supplementation with vitamin C, anywhere from 200 to 1000mg, with or without 235mg Vitamin E (1570% of the recommended daily allowance) not only provides no benefit, but might actually lower the adaptive response to inflammation, which is necessary for your hard work to make an impact [Paulsen et al. 2014; Thompson 2004].

Vitamin D is commonly known as the most important vitamin for bone health. Scientists are finding now that vitamin D has a very important function in the immune system as well. Joint, bone, and immune health might not seem all that related, but when you realize that it's your immune system that responds to inflammation, it's crystal clear that having enough vitamin D is critical for collagen health. Are you one of the 25% of American's who have a deficiency in vitamin D? If you don't get that much sunshine where you live, you may want to make sure.

Vitamin E is a powerful antioxidant that helps out your whole antioxidant-fighting system and may help your collagen heal faster. Get it in almonds, sunflower seeds, whole grains, and extra virgin olive oil.

Vitamin B complex includes all the B vitamins. These play a huge role in making sure your methyl donors (see SAM above, or see our blog post on methylation here) are functioning their best. Getting the right amount is important for heart health, mental health, and steady energy levels. You get the most B vitamins when you eat nuts, seeds, beans, fish, liver, eggs, yogurt, whole grains, onions, beets and green leafy vegetables.

Support Your Collagen With Minerals

Earlier we pointed out that vitamin C is the most important vitamin because it helps create the collagen structure. In a similar way, the minerals **manganese** (not "magnesium"), **zinc**, **iron** and **copper** either activate collagen proteins or directly help create collagen. Each is in different levels in different foods, but generally speaking, seafood, healthy meats, whole grains, nuts, and seeds are good sources.

There are plenty of other nutrients vital for collagen. **Calcium**, **Phosphorus**, and **Magnesium** are a few other important ones. If you're eating a colorful, varied diet of whole foods, you are probably already eating the right things to optimize your collagen health! However, natural sources of collagen are hard to come by. You can eat all the delicious, nutritious salads you can, but if you're not getting collagen too, you're changing your car's oil without giving it gas.

If you're one of the many who don't have the time, energy, or resources to make a balanced diet happen all the time, you can give yourself a bit of insurance by supplementing with the nutrients that you most need for your sustained vitality.

3. Eat Collagen Protein to Make Better Collagen.

It seems obvious, the best way to support your body's collagen-making machinery is by getting amino acids from a collagen supplement and other collagen sources. If you don't recall, go back and read the chapter on The Science of Supplementing with Collagen.

The specific amino acids glycine, proline, and hydroxyproline can be made by your body, but some experts think that our bodies might not be able to make enough to keep up with the damage and renewal that our joints require.

Add to this the fact that nowadays we don't eat nearly as much collagen-containing animal products that our ancestors did, and it makes sense to include a good supplement in your diet.

Other collagen sources include bone broth, fish scales, and bone marrow. You can make your own collagen at home, but you might have trouble justifying the time and effort, especially since home-made gelatin and collagen is notoriously unstandardized [Alkock et al., 2019] - meaning you never know if you're getting enough or the right kind. If you're like me, having a good flavored product that you can get on the go might make the difference between getting enough and not getting any at all.

Is Taking Collagen Enough For Improving Performance or Recovery?

The short answer is "yes". Collagen alone will get you the same benefits that research has shown - improved recovery and possibly even better bones and joints [Clifford et al. 2019; Konig et al 2018]. But that's just scratching the surface.

To get your best health, though, you're going to need more than just collagen.

You need an integrated systems approach. The oxidation and inflammation that many of us are exposed to stands between us and our potential. Once you get your baseline of health up with the right anti-inflammatory diet, targeted supplementation will do more than manage damage - it will improve your peak capacity. When every system is working together, supplementing with a clean collagen like Resync's collagen blend has maximum impact.

Taking a Whole-Systems Approach

When you take your car into the shop to repair a flat tire, you can hope that the flat is all that needs to be fixed. Now what if you learned that your flat was caused by too much wear on a single tire? And then you learn that the one tire was worn out because of a misaligned part. And the part was misaligned because you drove your car too far without replacing the shocks that support the suspension. That's a long line of issues!

Now, would you just replace the flat tire and keep on driving?

No! You would do best to fix the root problem and address every problem downstream from it. Fortunately, fixing how you care for your body is easier and less expensive than repairing a car!

In the same way, we at Resync see your body as a set of systems. Your lungs, your bones, your joints, and your skin are all connected by your circulation and your fascia.

How can you support your heart health to optimize your energy levels if your joints are stiff and your bones hurt? How can you fight inflammation and oxidation if your blood doesn't carry nutrients to the tissues that need them most?

So, when you have less energy because your joints are painful and stiff, we look to how well your heart is delivering nutrients and the quality of those nutrients delivered to your cartilage.

If you feel like your movement lacks stability and smoothness, we look to how well your heart is delivering nutrients, the quality of those nutrients delivered to your ligaments.

If you feel like your body isn't healing like it used to, we look to how well your heart is delivering nutrients and the quality of those nutrients delivered, and importantly how much access to those nutrients your tissues have.

You get the picture. If the systems that support every other system are out of whack, nothing else can function properly. If something feels off on the surface, it's a drain on your physical and mental energy.

A systems approach means that to address a problem, you have to look at the big picture. For your health, that means getting quality sleep, regularly exercising in a way that is meaningful to you and filling your body with the right amounts of the right combinations of the right foods at the right times. Once you've got things running as smooth as they can, then you might start to see where your body overworks itself or underperforms in certain areas, and this is when supplementing can be most effective.

Our Resync Collagen Blend was formulated to sync different systems in your body and create the most positive impact possible on your energy and well-being. It has the potential to help every system from your bones to your joints and fascia, from your blood vessels to your brain, from your muscles to your immune system. Using Resync is a step towards and integrated systems approach.

Start paying attention to how you nourish your collagen and you'll see the difference in your total body energy levels.

Now that you have fundamental knowledge on how to take your health and aging into your own hands, let's go deeper into what Resync Collagen Blend does that no other product does.

What Can Resync Collagen Do For Me?

Better Energy Without Doping

Many studies have shown that a number of things you eat can improve your stamina, and protein is among them. Just 10 grams of collagen protein mixed with a healthy source of carbohydrate can result in positive, clean energy. Compared to a typical sports drink full of short-lasting sugar, Resync Your Joints provides long lasting energy for multiple systems of your body.

Typical Sports Drink	Resync Your Joints Collagen Blend
❌Sugar provides short-lasting burst of energy	✅Natural nitric oxide precursors optimize the way your blood moves through your body to sustain the delivery of nutrients and energy
✅Sodium and potassium help maintain electrolyte balance during times of prolonged exercise	✅Sodium and potassium help maintain electrolyte balance during times of prolonged exercise
❌No antioxidants	✅Multiple types of antioxidants facilitate your antioxidant- and inflammation-fighting systems
❌No connective tissue support	✅Hydrolyzed collagen provides peptide building blocks to fuel muscles and kickstart recovery
❌No connective tissue support	✅Hyaluronan and bioavailable calcium provide additional support to connective tissue

Resync can help people recover significantly faster from workouts, feel less muscle soreness, and improve connective tissue health [Clifford et al. 2019] plus it allows you to perform at your

peak longer before you get winded by improving your blood flow [Moore et al., 2017]. It's all too obvious that a source of collagen blended with a targeted recovery formula is crucial to your daily health. Whether you're a trail-runner or an elite mom (or both!), **when you're able to recover faster you can perform at your best day after day.**

For connective tissue health and feeling your best the days after, hydrolyzed collagen is the optimal protein source for any physical activity. And what's even better, Resync Collagen Blend comes with added benefits – antioxidants, collagen support and nitric oxide precursors - that support your whole energy renewal system. **Clean energy plus faster recovery is a formula for your best performance, day in and day out.**

What Makes Resync Your Joints - Collagen Blend Different?

Two letters: N-O.

Not, "NO, we won't answer the question". We really want you to know what separates the Resync collagen blend from other collagen supplements!

NO stands for "Nitric Oxide", a tiny molecule you cannot live without. It comes from two pathways: one involving the amino acid arginine, and another that starts with nitrate precursors, which are most highly concentrated in red leaf spinach, beet root, and aronia berry extract.

Our Resync Collagen Blend supports your body's N-O naturally with all three of these nitric oxide precursors. The way our aronia berries are processed preserves the powerful antioxidant polyphenols. These beneficial plant components complement the properties of collagen and hyaluronic acid to put your body at its best after your put it through your worst.

The story of N-O as a disease-fighting chemical started in 1998, when the Nobel Prize in Medicine was awarded for the discovery of its positive role in cardiovascular health. Since then, research on nitric oxide has revealed some pretty powerful results. Now, research shows that N-O is important for:

- Lowering elevated blood pressure to a healthy range and keeping blood veins flexible through life
- Preserving heart health by feeding blood veins the molecule they rely on to keep you moving through the day
- Naturally stimulating the brain, nervous system and possibly even memory
- Signaling the body to mount an immune response against invading bacteria
- Maintaining adequate blood flow in the treatment of erectile dysfunction
- Optimal performance with deep clean energy and no crash
- Keeping collagen health in balance by increasing its access to nutrients

N-O is involved in so many different processes that it can be difficult to explain what it does simply. We'll leave it to the nitric oxide expert Dr. Andy Jones to summarize it: "I mean, life would not exist without it."

Brain health, heart health, joint health, immunity, and energy levels: you can see that many of these functions are directly affected by how you are aging. With our products, Resync wants to make your life easier, no matter your age or ability.

As a professional athlete, a recreational enthusiast, or somebody just breaking into getting active, your energy levels and heart health are probably some of the most important things your pay attention to. Here are some top ways N-O can help your heart and energy levels:

- Nitric oxide can help keep your blood vessels open and your blood flowing. This is critical for adequate oxygenation of your body and optimal energy levels.
- It plays a role in getting the oxygen in your blood out of your veins and into the surrounding muscle and connective tissue, supporting performance and healthy circulation beyond the blood vessels.
- It helps regulate the powerplant of your cells, mitochondria, and influences energy production in muscles. As Andy Jones emphasized, "It's very important, therefore, for both the delivery of oxygen to muscle and the utilization of that oxygen within muscle"
- By itself, N-O is a powerful anti-inflammatory molecule. It inhibits immune cells from binding to an inflamed blood vessel wall, which is a key step in the early process of heart disease.
- It serves as an antioxidant by detoxifying a number of oxidants in the body.
- It acts as a neurotransmitter in the nervous system and plays a role in the active signaling of the brain and nerves.
- It plays a role in the regulation of glucose and calcium balance in your body.

Knowing this, how can you not care about this simple, yet powerful molecule?

The unfortunate news is that our capacity to make nitric oxide can be impaired by a number of factors. Genetics, the environment we might be exposed to, unhealthy choices, and aging can all lower N-O levels. There *are* plenty of choices in our control when it comes to a healthy nitric oxide system.

One of the most important factors for our N-O levels is what we eat. Leafy green vegetables and deep red plants are loaded with nitrates. After we eat them, nitrates are processed into N-O when your body needs the energy boost. The human body can make about 20-40 mg of nitrite per day on its own, yet to supply it with enough nitrate to work optimally we need to eat 300-400 mg of nitrates per day! This shows how important a role our diet plays in supporting nitric oxide levels. The standard American diet, low in vegetables and high in processed foods, does more to sap nitrate than to boost it. Why do so many Americans not have the sustained energy they want through the day? Low nitrate and then nitric oxide levels might be a key to realizing your unfulfilled potential!

We mentioned that nitric oxide can come from two sources. For a long time, athletic circles used arginine-based supplements in the hopes that they would provide the theoretical benefits that boosting nitric oxide levels promises. Arginine *might* help *some* people *a little bit*, but recent research has shown that nitrates from beet root are a much more potent way to boost performance. Red spinach extract is the newest product on the market, and it boasts 5 times more nitrates from other standardized natural nitrate sources, thus assuring that you're getting a healthy dose of this valuable molecule. If you're looking for some clarity on what to look for in a nitric oxide supplement, check out our two-part article series on the best supplements here.

Besides the oxidation-regulating effects of natural nitrates, the other ingredients in Resync blends are carefully selected to maximize inflammation and oxidation fighting power to get you recovered and back on the playing field.

Novel Ingredients In Resync's Collagen Blend Formulation

Resync product has been formulated with premium ingredients backed by scientific research and published in peer-reviewed journals. Here's what to know about the hydrolyzed collagen peptides, nitric oxide precursors, and vitamins and minerals we use to hold up your energy and health.

Peptan® Collagen Peptides

Our source of collagen peptides, Peptan, is a clean protein, certified safe and allergen free, and easily and completely digested. As one of the macronutrients, protein can contribute to the body's energy supply in times of need. Hydrolyzed collagen peptides contain a high amount of the so-called "energy amino acids", proline and glycine, which can be converted to blood sugar to be used as energy; Lysine, also highly concentrated in collagen, can be converted into ketone bodies for fuel. This process requires a lot of time and only happens when other fuel sources like glycogen (stored sugar) and body fat have been dried up, which is why collagen proteins can also be called a "long term energy source".

Here's the breakdown of amino-acids used in Resync Collagen Blend. Some of these support muscle mass, others collagen strength, and still others are readily converted into energy as sugar or ketones for your muscles:

Amino-acids	Typical g AA / 100g Protein
Alanine	8.1
Arginine	8.4
Aspartic acid	6.6
Glutamic acid	12.4
Glycine	20.6
Histidine	0.8
Hydroxylysine	1.2
Hydroxyproline	11.4
Isoleucine	1.5
Leucine	2.9
Lysine	3.4
Methionine	0.6
Phenylalanine	2.1
Proline	11.5
Serine	3.4
Threonine	1.9
Tyrosine	0.5
Valine	2.4

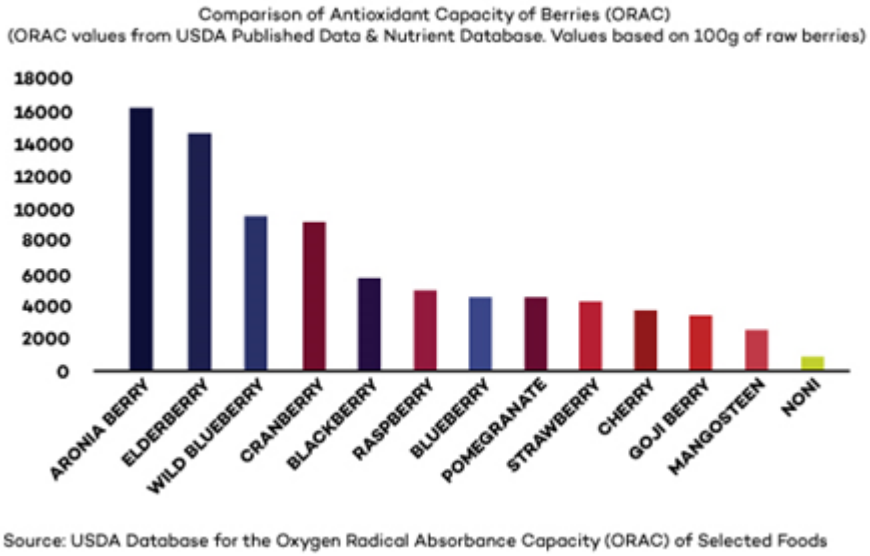
A nutritional supplement like **Resync Collagen Blend** supplies the body with all of the necessary amino acids to increase your body's own collagen metabolism. With the exception of tryptophan, collagen peptides contain all the essential amino acids, but if you eat any other protein source, tryptophan is not going to be limiting you. If you want to support your connective tissue, joints and skin, 15 grams of hydrolyzed collagen peptides in every serving of Resync Collagen gives you all of the amino acids necessary for joint health in exactly the right amount that your own collagen demands.

Aronia Berry (*Aronia melanocarpa*)

This platinum-status berry is enriched with high amounts of anthocyanins and flavonoids (anti-inflammatory plant molecules) AND provides a boost to N-O levels. Analytical chemistry research classifies it as a "super antioxidant", it boosts

vascular function, and is far and away superior when compared to other standardized fruit extracts.

Many independent research groups have shown that the natural aronia berry extract in Resync can have a powerful effect on your health. Aronia berry aids N-O synthesis and may potentially lower blood pressure, support smooth muscle (like your gut), and increase energy and performance in endurance activities [Varela et al., 2016]. Other researchers [Alejandra García-Flores, Medina et al., 2016] have suggested that aronia berry juice might have positive effects on the nervous system during training. Other studies have shown positive effects of polyphenol-rich dietary supplements in athletic performance [Myburgh et al., 2014] and still more research [Rodriguez-Mateos and Heze et al., 2014] has shown that the same flavanols and inorganic nitrates in Resync Your Joints can improve blood vein function in healthy subjects.



Aronia berries are considered one of the most powerful antioxidants known.

Resync seeks to be a leader in the field. We're developing research to further clarify the positive influence that aronia berry polyphenols, natural nitrates, and hydrolyzed collagen peptides could have on your quality of life and athletic performance.

OxyStorm® Red Spinach Extract

Red spinach (Amaranthus dubius, also called "amaranth") is a natural supplement new to the market. It contains extremely high levels of vitamin E and is high in iron and phytoecdysteroids. It has been shown to delay the ventilatory threshold, which means that you can exercise at a higher rate before your breathing increases. Red spinach extract may improve blood flow and

increase the amount of oxygen to the brain in cell studies, which can have implications on lowering fatigue and stress. [Moore et al., 2017; Subramanian and Gupta, 2016].

The red spinach extract used in Resync Collagen Blend, OxyStorm®, is one of the richest sources of natural nitrates on the market. It delivers 9000 mg/100 g, which is more than 5 times the amount of nitrate as beetroot powder and more than 50x times that of beet juice (Moore et al., 2017; Subramanian and Gupta, 2016).

It is 100% water soluble, contains no oxalates or sugar, is a unique source of potassium, and has a neutral pH. It is a perfect ingredient to support clean, deep energy.

Standardized Red Beet Root Powder

Red Beet (Beta vulgaris) is another source of natural nitrates. The betalain from beet roots has antioxidant and anti-inflammatory properties that may protect against the symptoms of connective tissue damage caused by exercise.

Natural dietary nitrate extract is the best way to boost nitric oxide in the blood because almost 100% of it gets absorbed by the digestive system [Clifford, Howatson, West, & Stevenson, 2015]. Among other functions, N-O relaxes and opens up blood vessels, which can lower blood pressure and increase blood flow to muscles, the brain, and even connective tissues.

Standardized Aronia Berry Extract

Aronia berry (chokeberry, Aronia melanocarpa) is one of nature's most powerful antioxidants [Jurikova et al., 2017]. It contains a huge amount of inflammation-fighting, natural plant chemicals called polyphenols like phenolic acids (neochlorogenic and chlorogenic acids), flavonoids (anthocyanins, proanthocyanidins, flavanols and flavonols), cyanidins (cyanidin-3-galactoside, cyanidin-3-arabinoside), and epicatechins that have substantial evidence to support their use in increasing antioxidant levels. You might say "I won't eat it if I can't pronounce it", but those long names are just the terms scientists came up with when they found out that there are literally thousands of powerful chemicals in plants that play a positive role in your health!

Thanks to the high amount of these bioactive components, aronia berries have a wide range of positive effects, such as potential heart-healthy, cancer-fighting, and anti-inflammatory activities [Banjari et al., 2017; Jurikova et al., 2017].

We should emphasize that the fruit of this bush does not accumulate heavy metals, such as arsenic, tin, cadmium or lead [Wawer 2005], which is not always the case with other berry extracts.

FruiteX-B® Calcium Fructoborate

Calcium fructoborate is a natural sugar-borate ester found in fresh fruits and vegetables that provides a natural source of calcium and soluble boron, a safe element linked to reducing symptoms osteoarthritis. At the cellular and molecular level, calcium fructoborate has been shown to be better than boric acid/borate in its ability to protect against an adverse inflammatory response [Hussain et al., 2016; Marone et al., 2016; Mogosanu et al., 2016; Price et al., 2017]. It provides effective and safe support against joint discomfort and helps improve flexibility that decreases with joint problems.

Supplementing with calcium fructoborate is effective in reducing symptoms of an unhealthy physical stress response, the discomfort associated with connective tissue damage, and calcium-dependent bone loss. It may also be good for heart health.

Clinical studies have shown that calcium fructoborate may decrease markers of inflammation, mainly C-reactive protein [Hussain et al., 2016; Marone et al., 2016; Mogosanu et al., 2016; Price et al., 2017]. Calcium fructoborate has GRAS status, meaning it is an ingredient that is “generally recognized as a safe” by the FDA.

Hyaluronic Acid

Hyaluronic acid (also called “hyaluronan”) is naturally present in the human body, especially in the eyes and fluid lubricant of the joints. It is a popular nutraceutical used not just for joint health, but also as an application on dermal tissues for wound healing, burns, and as a moisturizer [Bowman et al., 2018; Chen et al., 2018].

In joints hyaluronic acid acts as a cushion and as a lubricant [Altman et al., 2018; Bowman et al., 2018]. It also plays an interesting role in regulating biological processes and maintaining homeostasis (“balance”) in the body.

Significant research has shown its positive effect on skin and tissue regeneration, wound healing, and inflammation. Hyaluronic acid-based formulations (i.e., gels, creams, grafts, thin sheets, soaked gauze, gauze pads, tinctures, injections) have been shown to be remarkably effective in treating a range of inflammatory collagen-related diseases [Bowman et al., 2018; Chen et al., 2018; Toshiyuki et al., 2012]. It has been shown to be safe, tolerable, and effective in the treatment of various joint problems [Toshiyuki et al., 2012; Bowman et al., 2018]. Overall, hyaluronic acid can be part of a promising therapy to support your connective tissue health.

Ascorbic Acid, aka “Vitamin C”

Vitamin C (chemical name: “ascorbic acid”) is a water-soluble vitamin, antioxidant, and essential cofactor for making collagen, carnitine and catecholamine metabolism, and dietary iron absorption. It is a key circulating antioxidant with anti-inflammatory and immune-supporting effects, and it serves a key function in detoxification [Ahmadinejad et al; 2017]. Older studies show increased organ function when vitamin C was administered in low, repletion doses (2-3g intravenous vitamin C/day) in people deficient in vitamin C. Recent studies using much higher doses (6-16g/day) suggest that vitamin C reduces vasopressor support and organ dysfunction and may even support longevity [Ahmadinejad et al; 2017; Spoelstra-de Man AME et al., 2018].

We humans are unable to make our own vitamin C, so we must eat it in fruits and vegetables. Citrus fruits, berries, tomatoes, and green leafy vegetables are excellent sources of vitamin C. As we talked about earlier, turning proline into hydroxyproline when making collagen requires vitamin C, making it a necessary factor for resilient, mature collagen [Ahmadinejad et al; 2017; Spoelstra-de Man AME et al., 2018]. An unstable collagen structure decreases the health of your skin, the lining of your GI tract, blood vessels, and bone.

Resync Collagen Blend – Resync Your Joints was designed using an evidence-based, synergistic combination of clinically studied hydrolyzed collagen peptides, mixed with premium natural nitrates and antioxidants to nourish and rejuvenate connective tissue, to support optimal blood circulation, and to allow you to create your own sustained, clean, deep energy. †

Does Your Collagen Deliver Results?: The Essential Q’s To Ask Before Buying

Are you buying the right collagen to support your performance & recovery? Ask these 5 key questions to make sure your collagen works before deciding to buy.

You’ve come this far: it’s obvious that you’re interested in getting the benefits a collagen supplement can provide. Whether it’s better mobility and less joint pain, stronger tendons and bones, glowing moisturized skin, or stronger hair and nails, choosing quality is not always an obvious decision.

As with any supplement, FDA regulation is pretty loose, so it’s up to you as the consumer to make an informed decision. The types of questions to ask have to do with the:

- Type of collagen
- Dose in a serving
- Presence of other important ingredients vs. fillers
- Whether the health claims are based on science

- And most importantly, if it has been certified by a third-party

If you only use products that meet all these requirements, you'll be pleased with the results. But not every collagen supplement checks all these boxes. In fact, the companies that just want to make a quick buck don't satisfy any of them.

Don't want to spend hours checking the labels of every collagen supplement you buy? You are making an informed decision when you buy Resync Your Joints: Collagen Blend. And if your curious what other brands stack up to Resync's, keep reading!

"Is this the right type of collagen?"

Scientists have discovered 28 different types of collagen, and that number keeps growing. Even if you boil it down to the top 3 in your body, it still isn't obvious which ones you should be taking for what.

I'll take out the guesswork right now.

If you want to nourish your skin, ligaments, bones, blood vessels (and indirectly your hair and nails), types I and III are going to serve you best. This is the kind of collagen in Resync Your Joints.

If you want to see the benefits in your bones and stiff connective tissues (i.e. the cartilage in your joints), type I and type II collagen is best.

This means that for a healthy heart, beautiful skin, solid bones, and resilient connective tissue, type I collagen is the most important piece of any supplement, followed by type III, and then type II.

That being said, the *way* the collagen is made is just as important.

It's important to note that all collagen types are mostly made up of the same three basic amino acids: glycine, proline, hydroxyproline. Different collagen types have different amounts of other amino acids like glutamate, arginine, alanine, hydroxylysine and others, but the presence of these is much lower. In your body, these amino acids are packed in pairs or trios and then built up like a scaffold is built around a building under construction.

Traditionally, supplemental collagen was taken in the form of gelatin. Gelatin is made of collagen - so it is a good source - but the collagen in gelatin is in huge proteins that can cause gut pain and won't get absorbed very well.

But studies show that taking a hydrolyzed collagen is best [Skov et al., 2019; Feng et a. 2017]. Hydrolyzed collagen is more broken down than a gelatin source, but isn't broken down to the point of individual amino acids. These "peptides" are partially absorbed intact and pre-formed for your body to use. When your body sees those peptides, scientists think it signals an anti-inflammatory reaction so that your collagen cells use them first before other organs and cells have a chance [Schadow et al., 2017; Zhu et al., 2007; Barnett et al., 1998].

We do have enough evidence to show that collagen supplements are your best choice though. The research available shows that collagen peptides are the form that's absorbed. Hydrolyzed collagen peptides are absorbed better than non-hydrolyzed collagen or gelatin, and they find their destination and are used by the body better than individual amino acids.

If sustainability is important to you...

Grass-fed, free-range (or in the case of marine collagen: wild-caught) collagen sources are the best for the planet. The collagen in Resync comes from quality-certified and predominantly grass-fed sources [Peptan 2019c].

To sum up the first question you should ask when staring down the supplement aisle:

- Make sure your collagen has types I and III if you're looking for glowing skin, stronger bones, and better connective tissue.
- To maximize your body's ability to digest, absorb, and utilize the collagen, take a hydrolyzed collagen peptide supplement.
- Add an eco-conscious level to your purchasing decisions by choosing grass-fed or wild-caught collagen whenever possible.

"What is the dose per serving?"

This one's an easy question to answer.

Check out the nutrition label and look for the grams of protein per serving. The research shows that you should take 5 to **10 grams** per day for 12 weeks for better hair and skin[]. Other research shows that you should take at least **5 grams** per day for 6 months for stronger bones [Konig et al., 2018].

There are so many fillers in some products out there that you might have to take it 5 times per day to actually see any benefit!

So, make sure your collagen supplement provides **5 to 10 grams of collagen hydrolysate per serving**.

“What other ingredients are present?”

Do these ingredients synergize, or are they just added as fillers?

One to keep in mind is the antioxidant vitamin C (“ascorbic acid”), which plays a crucial role in collagen formation. One of the most important stabilizing components of collagen protein is the amino acid, hydroxyproline. If there isn’t enough vitamin C available in your body, proline cannot be used properly, and your collagen starts to fall apart.

The research shows that 15g of vitamin C is enough to enhance the benefits of a gelatin supplement. Clinical trials are currently underway to get a better picture on this topic.

So, going back to what else you need to pay attention to as a smart consumer: check if your collagen product delivers at least **25% of the daily recommended dose of vitamin C: 15 grams**. Other natural antioxidants and anti-inflammatories are a big plus!

Important fillers to watch out for are added amino acids, called amino acid spiking, which reduces the amount of preformed collagen you’re getting. Others include carrageenan, artificial colors, and synthetic flavors which can cause allergic reactions and provide no benefit for you.

“Are there studies to back up the health claims on the bottle?”

It’s always a bonus - in our opinion, a *must* - that the source of collagen you use has had clinical studies that demonstrate that it can be helpful at your age, your physical activity level, and in line with your purpose of using the product. We know 99% of them do not.

The collagen used in Resync was shown to support recovery from athletic performance in typical adults as well as stronger, moisturized skin in older women. Other high-quality collagen sources have been recently shown to support bone health, and its use for osteoarthritis and joint pain have been studied at length.

Want more evidence? Check out Peptan’s science page here.

Regardless of which source of collagen you decide to consume, the most important consideration is**:**

“Is it certified by an independent, 3rd-party testing lab?”

Just because a product was formulated by a doctor or endorsed by a celebrity, it doesn’t mean that the product is clean, safe, effective, independently tested for quality, or certified. The responsibility is on you to check for all these markers of quality. That is why Resync products are taken by elite athletes in the US - these performers not only see and feel the differences in

their performance and recovery, but they know through experience that the quality of our products can be trusted.

Third-party testing labs are independent companies that make sure the ingredients on a product label are actually present in the same amounts in the products themselves. They make sure that contaminants are lower than federally mandated levels. Some supplement manufacturers try to get away with cutting their product with unlabeled fillers, so look for a quality seal certification like NSF International or GRAS (“Generally Recognized as Safe”).

Other 3rd-party testing labs make sure that a supplement is FREE of banned substances that would put your health and performance in jeopardy. These companies are critical for maintaining transparency, and you should be rightfully suspicious of any company that isn’t certified.

Resync products are certified by two of the most respected independent product testing organizations, NSF International and the Banned Substances Control Group (BSCG). When you see the “NSF Certified for Sport” quality seal (a certification level higher than the basic NSF certification) or the BSCG stamp of approval, you know that the product went through a detailed banned substances testing. Look for those marks so you can focus on your health and vitality, instead of worrying if the product is a quality one or not.

When you buy products that have these certifications, you're buying quality and transparency. This is what Resync stands for!

To summarize what to pay attention to when choosing your collagen peptide supplements*:*

- ▢ Does this product provide the type of collagen I need? Is it a hydrolyzed collagen?
- ▢ What is the dose per serving? How many servings do I need to take to get 10 grams per day?
- ▢ Does it have at least 25% of the daily value of vitamin C (15mg)? Does it have any other antioxidants? What about artificial fillers?
- ▢ Does this collagen have any clinical studies to back its health claims up?
- ▢ Is the product certified by a 3rd party testing company? Does the specific collagen have GRAS ("generally recognized as safe") status?

Just because a product was formulated by a doctor or endorsed by a celebrity or athlete, that doesn't mean that the product is clean, safe, effective, independently tested for quality, or certified. The responsibility is *on you* to check for all these markers of quality. Don't settle for less than the best quality.

Top Collagen Supplement Comparison Chart

PRODUCT	SERVING SIZE	PRICE PER SERVING	COLLAGEN PER SERVING	NATURAL NITRIC OXIDE PRECURSORS FOR ENERGY	ANTIOXIDANTS	VITAMIN C - 100% DAILY VALUE **	3rd PARTY TESTED
	20	$2.59	15g	✓ Non-GMO Oxystorm Red Spinach Leaf Extract Non-GMO Beetroot Powder	✓ Non-GMO Beet Root Non-GMO Aronia Berry Extract	✓ Vitamin C - 100%	✓ BSCG DRUG FREE
	30	$1.33	1g	✓ Non-GMO Beetroot Powder (Not standardized to nitrate levels)	✓ Non-GMO Beetroot Powder	X Only 60%	✓ INFORMED SPORT
	14	$3.50	5g	X L-Citrulline, Arginine Nitrate (Not natural sources of nitrates)	X	X Only 50%	X
	45	$0.99	9g	X	X	X	X
	41	$1.34	11g	X	X	X	X
	15	$2.99	11.5g	X	X	X	X
	58	$1.20	7.8g	X	X	X	X
	20	$1.75	0g	X	✓ Buckthorn, Kale, Green Spinach, Amla	✓ Vitamin C - 100%	X

*This graph depicts information pulled from each individual company's website on Jan 24th 2020. A daily value of 100% is needed to maximize collagen synthesis. Research shows that natural nitrates, long term, are more beneficial than L-arginine, L-citrulline, or any other synthetic nitrate or nitrite. *

Above we have prepared a comparison of some top collagen products currently on the market. When stacked up against one another, it's pretty obvious which comes out on top.

Collagen: Connecting The Dots

You know by now that collagen proteins are a major component of the human body providing structure and function to your heart, brain, skin, bones, connective tissue or even enzymes that are essential for your metabolism.

I guess the question you need to ask yourself is, can you see yourself using clinically tested hydrolyzed collagen peptides with the right antioxidants and additional valuable ingredients that are great not just for your heart and energy, but also for your connective tissue health?

Resync's mission is to help people live healthier lives. I personally wanted to create products that you and your family can use safely to feel and see the difference within. Collagen with

antioxidants and natural nitric oxide precursors can serve your entire family so you can spread the health awareness around the people you care about the most. You have the opportunity to take charge and control of your life, using foods and products to transform the way you feel and perform every day.

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