

BioCell Collagen®:

The science-backed ingredient to ensure
your collagen product stands out
from the crowd



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BioCell Collagen: A science-backed ingredient for successful product development

Collagen is undoubtedly the star ingredient of the moment. However, not all collagen ingredients are created equal and the quality of different collagen on the market today varies enormously. Collagen type, source, molecular size, composition, manufacturing process and dosage all have a significant impact on the final product's effectiveness.

The first step in creating a successful collagen product is therefore choosing the right collagen supplier.

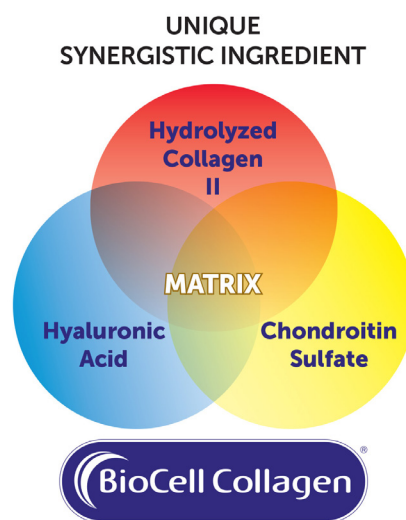
Many collagen ingredients are made using the entire carcass of the animal, resulting in a lower-grade collagen. Science-driven supplier BioCell Technology sets itself apart from other companies by extracting 100% of its collagen from a single source: **pure chicken sternal cartilage that is guaranteed to be free from hormones and antibiotics.**

Thanks to its patent-protected manufacturing process, the final ingredient, BioCell Collagen®, is a rich source of hydrolysed type II collagen, hyaluronic acid, and chondroitin sulphate.

This synergistic composition is not a blend of individual ingredients but a unique matrix that closely mirrors the composition of human articular cartilage. What's more, it cannot be found in any other collagen brand or blend.

BioCell Collagen® has both a low molecular weight and superior bioavailability – two attributes that are increasingly important for today's clued-in consumers who expect brands to deliver on their health claims. According to Stephanie Mattucci, associate director of food science at Mintel, supporting optimal absorption is an important area for future innovation for supplement brands.

"Looking forward, wellness will become even more holistic and more integrated with technology. For supplements, this means delivering on promises with high quality and bioavailable products," she says.¹



BioCell Collagen's advanced matrix contains collagen peptides that have been hydrolysed, ensuring maximum absorption by the skin, hair, nails, joints, ligaments, and tendons. Thanks to its high bioavailability, brands can also use BioCell Collagen® at lower doses compared to other collagen products on the market while still delivering on their claims.



Identifying opportunities per category

Beauty-from-within: Create beauty products that are more than skin-deep with BioCell Collagen®

The Covid-19 pandemic and resulting global lockdowns dramatically limited the opportunities for socialising and, consequently, consumers reduced the amount of time and money spent on their appearance. This is now changing.

"With life returning to the 'next normal', consumers are once again keen to look their best and are seeking out vitamin, mineral and supplement products which support the health and appearance of their skin, hair and nails," says Mikolaj Kaczorowski, innovation analyst at Mintel.

As an ingredient that is intuitively linked to skin health – it is, after all, the most abundant protein in the dermis – collagen is one of the most sought-after ingredients in beauty-from-within products today. In the US, a massive 70.2% of collagen users take it for skin, hair and nail health, according to a 2022 survey by Nutrition Business Journal².

In Europe, the collagen supplements market is expected to grow by 6.9% over the next five years, fuelled by a growing desire to prevent premature ageing, according to Mordor Intelligence.³

Italy is expected to account for the lion's share of this growth, followed by the UK and France, owing to the growth and acceptance of several collagen peptide-based products in various forms, particularly among the aging population, it says.⁴

Area to watch: Stealth skin health & collagen supplements for men

Demand for beauty-from-within products is dominated by women.⁵ However, by opting for an overtly feminine branding, brands risk alienating a largely ignored and untapped – but potentially lucrative – demographic. There is a growing interest among heterosexual male consumers for solutions to improve their appearance. Fifty-five percent of heterosexual men aged over 51 say their top motivation for using grooming, skincare and cosmetic products is to improve skin texture and appearance.⁶

The nutraceutical format could hold significant appeal to men because they are already the biggest vitamin, mineral and supplement users compared to any other demographic, according to Mintel data.⁷

What's more, supplements targeting skin health and appearance may allow men to take a 'stealth beauty' approach, seamlessly integrating the supplements into their daily nutrition regime, rather than using topical creams and serums that are associated with women's skincare routines.

Recent market research by IPSOS recommends that brands develop 'discrete' skincare and cosmetic products that can be used privately, particularly for men aged 51 and over. Men in this demographic are more likely to have significant concerns about their ageing appearance – but they also have reservations about people knowing they use grooming and skincare products, it says.⁸

Choose BioCell Collagen® to boost your beauty brand

Thanks to its deep understanding of the ageing process and how it can be remedied, BioCell Collagen® is the natural choice for brands' beauty-from-within products.

Ageing is associated with an increase in hyaluronidase activity, which accelerates the breakdown of hyaluronic acid. This in turn reduces elasticity of the skin and contributes to the ageing process. BioCell Collagen® is proven to have properties that demonstrate strong hyaluronidase inhibition, protecting the skin's hyaluronic acid from degrading and keeping the skin soft, supple, and elastic.

Rather than relying on mere marketing, BioCell follows strict scientific protocol to back up its claims and has no less than seven clinical studies under its belt to date. One randomized, double-blind, placebo-controlled trial – the gold standard of objective, scientific research – demonstrated that BioCell Collagen® led to a more youthful skin appearance.

After just 12 weeks of supplementation, researchers proved that BioCell Collagen® reduces the visible signs of facial ageing, such as skin dryness, crow's feet lines and wrinkles, and increases skin elasticity and collagen content in the dermis by 12% with no reported side effects.^{9 10}

Additionally, a laboratory study, published in the respected, peer-reviewed Journal of Functional Foods, found that daily intake of BioCell Collagen® reduced common signs of UVB-induced photoaging and significantly increased skin elasticity and hyaluronic acid content compared to the group that did not receive the supplement.¹¹

Joint health and sports nutrition

Collagen is closely associated with joint health and mobility in the minds of consumers as it is the most abundant protein in joint cartilage, providing essential structural support for the body's connective tissue.

Type II collagen is known to have targeted beneficial properties for articular cartilage, joints, bones, connective tissues, and muscles, and functional recovery from exercise. This means it can be positioned to appeal to both consumers looking to improve their everyday mobility and quality of life, and for the growing number of 'everyday athletes' who want to enhance their physical performance.

Over one-third (34.9%) of US collagen users already say they take it to improve their joint and mobility while 7.1% take it to optimise their performance in sports,¹² and this could well grow as healthy lifestyles become increasingly important in the post-Covid-19 world.



The pandemic has brought health and wellness to the forefront of consumers' minds, irrespective of age, and many say they are looking to adopt a proactive and preventative approach to health, according to 2022 FMCG Gurus research.¹³ The result is that supplements and functional food and drink products are growing in popularity.

"The sports nutrition market is no longer associated with a specific audience of avid gym goers [or] active sport participants," says FMCG Gurus. "Instead, the sports nutrition market has become increasingly mainstream, with everyday consumers substituting traditional snack and beverage products for sports nutrition products that they believe are guilt-free, conveniently nutritious, and help them manage their health goals."

Unlike other single ingredients that offer only a partial approach to joint health, BioCell Collagen is a multi-dimensional ingredient that allows brands to go one step further because they can highlight the benefits not only of type II collagen (the predominant collagen in articular cartilage), but also of chondroitin sulphate and hyaluronic acid.

Described as one of the building blocks of cartilage, chondroitin sulphate enhances the shock-absorbing properties of joint cartilage¹⁴ while hyaluronic acid, also naturally present in the body, is a natural lubricant that keeps joints mobile.

Every BioCell Collagen® ingredient contains these three macro components that have been purified, synergised and bio-optimised to increase their bioavailability. This unique patented composition is clinically proven to be effective in improving joint mobility, comfort, and performance, and reducing pain.

One clinical study demonstrated that a 2g daily dose of BioCell Collagen® significantly reduced pain levels reported by sufferers of osteoarthritis, helped manage their symptoms and significantly improved their physical activity.¹⁵

Another clinical study, published in the Journal of the International Society of Sports Nutrition, showed that a 3g daily dose of BioCell Collagen® reduced the serum biomarkers for muscle tissue damage after exercise, indicating its beneficial effects on connective tissue protection and recovery after physical activity.¹⁶

Additional research also suggests that BioCell Collagen® stimulates the natural process of collagen regeneration in the body, increasing all of the major collagen types – I, II, and III – found in the joint, skin and other connective tissues.¹⁷



Innova Market Insights has identified improving bone and joint health as one of the most desirable functions within the sports nutrition and functional nutrition categories.¹⁸ This bullish outlook is reflected in its market data, which shows that joint health claims in new products with collagen rose by an average of 85% from 2017 to 2021.¹⁹ Europe leads the way for such product launches, accounting for 41% of all global launches with collagen making a joint health claim, followed by North America (34%) and Asia (10%).

Brands looking to stand out in this dynamic category would do well to use BioCell Collagen® in their products.

Harnessing healthy ageing: A growing global concern

Nearly every country in the world is experiencing a rise in the number of seniors in their population, according to the United Nations (UN), and by 2050, the number of people over the age of 65 is forecast to double to 1.5 billion.²⁰ This global change is so great the UN has called population ageing “one of the most significant social transformations of the twenty-first century”.²¹

Crucially, consumers are looking to improve their ‘health-span’ – not their life span – and so functional ingredients that can maintain a good quality of life are of increasing importance to consumers around the world. Collagen is known to have targeted beneficial properties for joint comfort and mobility, bone health, connective tissue protection and functional recovery from exercise, which means it can tackle several key areas of concern for healthy ageing at once.



Adding a holistic health halo to your product

The rise of interest in holistic health is also an interesting angle that collagen brands can tap into. Analysts at Nutrition Business Journal note that, while collagen is still the go-to supplement for healthy hair, skin and nails, it is increasingly becoming more attractive for anyone concerned about joint health and general health, as well as being a source of protein. A survey conducted by Nutrition Business Journal found that nearly one-third (29.3%) of US collagen users take collagen to optimise overall health.

BioCell Collagen® is a multi-functional health ingredient with proven beneficial effects on a wide range of health outcomes, available in many different formats. What this means for brands is the ability to create products with multiple holistic health positionings and in a range of formats that caters to consumer needs.

Approved: Back up your health claims with BioCell Collagen®

Consumers are looking for science-backed ingredients but, in today's fast-paced world, they do not necessarily have the time to research ingredients themselves.

They want tried, tested and trusted ingredients and health claims that are easily identifiable on a crowded shelf. Authorised health claims are the most reliable way for brands to draw attention to a star ingredient in their formulation.

The benefits of BioCell Collagen® for skin, joints and mobility have been substantiated not just by scientists but by one of the world's most rigorous regulatory authorities, Health Canada.

The government institution that is responsible for designing Canadian national health policy, Health Canada, has approved two health claims for BioCell Collagen®. Brands can claim that, at a dose of 500 mg twice a day, BioCell Collagen® is effective in helping to reduce the number of deep wrinkles and maintain healthy skin; reduce fine facial lines and wrinkles; increase skin elasticity; increase collagen content; and promote healthy collagen production in the skin.

Health Canada also approved BioCell Collagen® for helping to relieve joint pain associated with osteoarthritis of the hip and knee at a dose of 1 g twice a day.

In Europe, the European Food Safety Authority (EFSA) has also ruled that dietary intake of vitamin C supports normal collagen formation. Nutricosmetic brands can therefore blend BioCell Collagen® with vitamin C to enable an eye-catching collagen-related health claim on their products.

Which format for your product?

Collagen is a versatile ingredient that can be added to a myriad of functional food, drink and supplement formats. Powder is by far the most popular, accounting for 43% of 2021 launches of supplements with collagen making a joint health claim, according to Innova data.²²

A majority of consumers from Germany (56%) and India (79%) prefer to get their nutrients through functional food and drink rather than through supplements, according to Mintel.²³ Brands are responding to this demand for new formats, which can be seen in new product launch activity.

Global collagen product launches in the gummy format have more than doubled, jumping from 2% in 2020 to 5% of global launches in 2021, according to Innova.²⁴

Another interesting format that is on-trend in Europe is direct-to-mouth collagen powders that can be consumed on-the-go without the need to dilute them in water. Packaged in individual stick sachets, these represent an interesting format for brands to explore.

BioCell Technology owns intellectual property rights to BioCell Collagen® and is only available to partner companies via a licence agreement. It is not available to be used in oral liquid or powdered drink mix applications or any products marketed through direct selling (as defined by dsa.org) or multi-level marketing (MLM) sales channel.

A trusted ingredient from a trustworthy supplier

Shelf stable for three years even when blended with other ingredients, BioCell Collagen® is the trusted ingredient of choice for hundreds of manufacturers around the world, present in a myriad of formats from supplements to gummies to functional food and drink products.

It has self-affirmed GRAS (Generally Recognized as Safe) status, and is non-GMO, and free from gluten, soy, shellfish, fish, egg, milk, peanuts, and sugar, BioCell Collagen® is manufactured exclusively in the US and Germany by trusted partners.

California-headquartered BioCell Technology recently opened a new facility in Germany in 2021, demonstrating its long-term commitment to serving customers in the European and international markets.

To make its collagen, BioCell Technology adheres to a rigorous and patent-protected manufacturing process that involves filtering, purifying, concentrating, hydrolysing, and sterilising the chicken sternal cartilage before testing it to ensure its consistent quality.

Thanks to its licencing model, under which consumer-facing brands agree to exclusively use BioCell Technology supplied ingredients in their finished products, BioCell Technology retains control over use and distribution of its ingredient, ensuring that the name BioCell remains synonymous with quality and efficacy.

BioCell Collagen® is a recognised and trusted branded ingredient that manufacturers can be proud to use in their products. A recent survey by the Ingredient Transparency Center (ITC) that questioned 2,000 collagen users found that over 60% said they always looked for branded ingredients or appreciated branded ingredients when they found them.²⁵

In fact, many brands make the BioCell name the most prominent feature of the product's front packaging, indicating their confidence in the ingredient and its strong appeal to consumers.



Suhail Ishaq
President
BioCell Technology

Interview with Suhail Ishaq, president of BioCell Technology

How does BioCell Collagen® differentiate itself from other collagen ingredients on the market?

"We have actually pioneered the applications of hydrolysed collagen type II in the dietary supplement space. A lot of products in the market are made from the entire carcass. They tend to be really high in protein content and are also primarily type I collagen, which is the most abundant type of collagen found in the body."

"Where BioCell Collagen® is differentiated is that, first of all, we derive our material exclusively from cartilage and because it's from cartilage, it also has high amounts of glycosaminoglycan content. It's important to know that because glycosaminoglycans, like chondroitin sulphate and hyaluronic acid, are also components of the extracellular matrix (ECM), as well as collagen."

"Our product works via a different mechanism of action [compared to other collagens on the market] by providing bioavailable hydrolysed collagen type II peptides and naturally occurring chondroitin sulphate and hyaluronic acid."

Conducting scientific studies is time-consuming and costly with no guarantee of the results. Why is it important for BioCell Technology to make this investment?

"It's important to say that we did not conduct the studies ourselves, we commissioned the studies from professional contract research organisations. I think any responsible and reputable player in the industry, especially when it comes to a highly diverse category like collagen, will share the opinion that you shouldn't be borrowing science from other companies. Not every ingredient is exactly the same."

"For example, ascorbic acid has a very defined chemical structure and when you're dealing with materials from biological sources, like collagen, there is obviously a lot more complexity."

"That's why it's really important that if a company is going to be making claims, it should be able to substantiate their specific ingredient by studies to make sure it's effective. Our ingredient is more than just isolated purified collagen. It's been clinically studied for toxicology, efficacy, and bioavailability, and it can have very targeted effects."

What are the benefits for manufacturers in using a branded collagen ingredient such as BioCell Collagen®?

"Studies have shown that consumers actually look for branded ingredients because they trust brands. It's easy to identify what's behind the product. So, when someone sees BioCell Collagen® in a product, they associate it with quality and efficacy. They can also Google the name and see all our scientific studies. When brands can deliver on that level of consumer interest, the sales of their products will be solid and strong."

"Leading CPG brands like the ones that we've partnered with – for instance Solgar, Pure Encapsulations, and Doctor's Best – believe in using science-based ingredients, so they opt for branded ingredients intentionally because they want to produce and market responsible and effective products."

"Using branded ingredients is great because it really creates a win-win relationship. One of our keys to success is that we've always partnered with our clients, and the evidence is in how long they've been in the market. We have customers that have sold products for more than 20 years and those products are still doing well and growing in a highly competitive and crowded market."

**Interested in using the BIOCELL COLLAGEN® ingredient
in a new product development? Please contact:**

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Key takeaways

- Beauty-from-within skin health, healthy ageing, and sports nutrition are the most promising categories for collagen, fuelled by long-term trends that will continue to grow in coming years, such as an ageing global population and a desire to take a holistic approach to health.
- The collagen category is booming, which has led to a proliferation of products on the market. However, many of these products use sub-standard collagen made from the entire animal carcass.
- Brands must take care to source bioactive, bioavailable collagen so they can substantiate their claims, allowing consumers to see and feel the benefits of collagen supplementation.
- BioCell Collagen® is made from 100% chicken sternal cartilage and contains a naturally occurring synergy of hydrolysed collagen type II peptides, chondroitin sulphate, and hyaluronic acid.
- With seven clinical studies to date, BioCell Collagen® has scientifically proven benefits for bone and joint health, skin appearance, and muscle recovery.



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