

life's® Limitless when you
go straight to the source



Limitless. Sustainable. Potent.
Harness the power of algae
for omega-3 innovation.

dsm-firmenich ●●●

Fish oil supply is not limitless. But algae is.

This guide is designed to support you in crafting next generation omega-3 supplements that are sustainable, science-supported and most importantly, can scale to meet the needs of the planet's growing population. Giving more people access to the heart, brain, eye and immune health benefits that come with eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) fatty acid intake.

But the advantages don't stop there. By making the simple switch to algae-origin omega-3s, you can deliver a product with higher potency, a shorter supply chain and at a competitive price point. Learn why algae represent the future of omega-3 innovation – and discover how they're set to inspire a new wave of supplements.

Ready to dive in?



Delving beneath the surface of the omega-3 gap

Omega-3 products are one of the most well-known supplements. So why don't 80% of the global population consume enough EPA and DHA fatty acids (250-500 mg per day)?¹

71%

consumers are familiar with omega-3 supplements²

<20%

of the global population achieves recommended omega-3 intake (≥ 250 mg/day)¹

Awareness of omega-3 is high. But when it comes to usage, consumers consumption falls short. That's because there are several potential barriers to omega-3 consumption.

- Large pill size
- Fishy smell or taste
- Sustainability concerns
- Intangible health benefits
- Low awareness of plant-based options
- Lack of awareness of broader health benefits



Sailing towards sustainability

Omega-3 fatty acids are traditionally associated with fish oils. *But we believe it's time to rethink omega-3 innovation.*

Why? First, consumers are becoming more environmentally conscious, fueling demand for planet-friendly products. Simultaneously, the population is growing and fish oil supply is neither limitless nor sustainable to meet people's health needs. The fishing industry continues to face swelling pressures – from limited natural resources to changing climates and rising prices – and wild fisheries are already operating at full capacity. Raising the question:

“How can dietary supplement brands satisfy global demand for omega-3 while aligning with consumer values and preserving marine life?”

62%

omega-3 users say they prefer plant-based options²

There's more to omega-3s than meets the eye (heart and brain)

The health benefits of omega-3 fatty acids have been researched in more than 40,000 scientific papers, including 4,000+ human trials.³

However, besides the well-known benefits of omega-3s for heart, brain and eye health, consumers are less aware that EPA and DHA can address a broad spectrum of other wellness concerns. This means that although the extensive benefits of omega-3s are well-documented in scientific literature, they are not always top of mind for omega-3 consumers or individuals looking to enhance their health and wellness more holistically.

To help you change the conversation around omega-3s, here are lesser-known, science-supported health benefits of these fundamental fatty acids.



1. Strengthen immunity

A robust immune system helps to fight infection and disease – and research suggests that omega-3s may contribute significantly to maintaining normal immune function.⁴

Inflammation is a vital aspect of the immune response, however, it is usually resolved quickly; minimizing potential damage to tissues and promoting healing post-inflammation. Scientific evidence demonstrates that the anti-inflammatory properties of omega-3 fatty acids are instrumental to this process. That's because EPA and DHA present at the site of inflammation are converted to pro-resolving mediators (SPMs), and – along with other molecules – coordinate the resolution of the inflammatory response.^{5,6}

This process can be delayed in individuals with low omega-3 levels, which can reduce their resistance to disease and infection. To support optimal immune function, consumers are therefore advised to consume at least 250 mg EPA and DHA daily.⁵



2. Dreaming of a good night's sleep

Quality sleep is one of the foundations of optimal health – yet it remains a key concern for many individuals globally. But did you know that omega-3 fatty acids could make a good night's rest a reality?

A growing bank of evidence highlights the possible benefits of omega-3s for sleep throughout life. Science shows that DHA, in particular, may improve sleep length and quality in adults, children and adolescents.^{24,25,26,27} Whereas low levels of DHA have been associated with reduced melatonin – an important hormone that helps us fall asleep.²⁸



3. Mood boosting potential

Omega-3 fatty acids are well-known for their brain nourishing effects. This starts in infancy, where they play a role in neurocognitive development⁷, and continues through to adulthood and senior years, where they support almost every area of brain function, including cognitive health, attention, learning, memory – and mood.

Growing evidence shows that EPA and DHA may have a promising impact on symptoms associated with mood disorders. Studies show that lower levels of omega-3s in the blood plasma can be linked to poorer mental health, especially mood.^{8,9,10,11} Depression, for instance, is less common in nations where people eat large amounts of fish in their diet.¹² Additional research has revealed that omega-3 supplementation helps women maintain a healthy mood during pregnancy and after giving birth too; addressing depression concerns during this phase of life.¹³



4. A winning ingredient for sports performance

Consumers continue to lead more active lifestyles – and with this, interest is stepping up in nutritional solutions that support sports performance. Omega-3s deliver many benefits for key aspects of sports performance, including muscle recovery after physical activity.^{14,15,16,17}

Cardio-respiratory fitness (the ability of the circulatory and respiratory systems to supply oxygen to skeletal muscles during sustained exercise) is another area that benefits from omega-3 intake. Here, EPA and DHA help to decrease heart rate and oxygen consumption during physical activity,^{18,19,20,21,22} and further research shows that they may improve heart rate recovery after exercise too.^{18,23}

Similar to their effects on immune function, the anti-inflammatory properties of omega-3s are gaining most attention in this field. Taken together with their positive influence on muscle protein synthesis, it's clear that omega-3 fatty acids have an important role to play in muscle health and physical performance to help support active living.

Algal-origin omega-3s are rooted in innovation

dsm-firmenich is using its expertise as a climate, nutrition and health leader to reshape the omega-3 supply chain.

How? **The solution can be found within algae.**

Algal-sourced omega-3s offer an ocean of possibilities; delivering all the benefits of fish oil – and more. Here's why.

Supply

Algae can be developed into a pristine nutritional oil much quicker than fish; significantly shortening the supply chain. This provides you with a purer, fresher and more potent omega-3 solution – without the wait. Plus, algae is protected from price fluctuations or contaminants often associated with fish oils and production is scalable; delivering on premium quality at a stable and competitive price point.

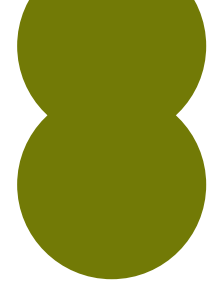
Potency

Naturally twice as potent as fish oil? That's algal-sourced omega-3s. Higher omega-3 concentrations within algal oils mean that less is required to deliver the same health benefits as traditional fish oils. But it's not just fish sources that algae out-competes. Other plant-based options, like flax seed and chia seed, are less potent too; making algal-origin omega-3s a no brainer for innovation.

Sustainability

By opting for algal-origin omega-3s, you actively participate in preserving marine ecosystems and reducing environmental footprint. Plus, you appeal to the growing cohort of consumers that prefer non-fish options or follow vegetarian diets.

Make a big impact with a simple switch



Algal omega-3 isn't just an ingredient. It's a solution.



At today's population level, 700,000 MT of EPA and DHA is needed to support health needs.

But the total omega-3 supply available is 500,000 MT – **falling short of annual EPA and DHA needs by almost 30%.**

Simultaneously, more than 1/3 of ocean fisheries are overfished and 2/3 are fished to maximum sustainable yield.

This has contributed to a **50% decline in marine life** in the last 50 years and a 35-50% increase in fish oil price.

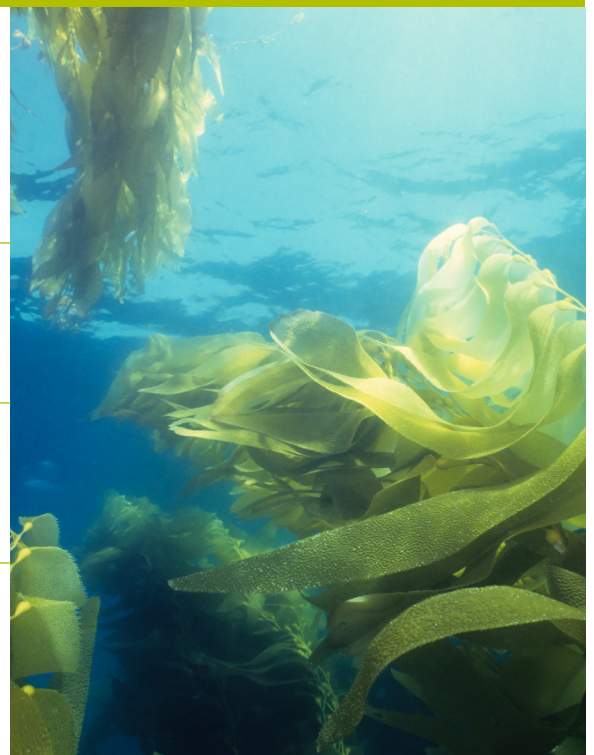
Algae goes straight to the sustainable source.

Cultivated, grown and refined into an omega-3 rich oil in **just 25 days** – much faster than the 24 months needed to develop fish oils – and with **minimum impact on marine systems.**

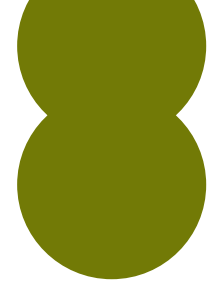
It's naturally **2x more potent than fish oil** and exhibits better organoleptic properties (less fishy).

Algal-sourced omega-3s have a **lower carbon and environmental impact.**

And choosing a premium algae-origin omega-3 solution could **spare up to 22 million tons of fish...** every single year.



Myth-busting algal-based omega-3s



There's nothing fishy about algal omega-3s. Discover six truths about this advanced omega-3 source to help you decide if it's more of a catch than fish oil.

Myth #1

EPA and DHA are produced by fish.

The origin of EPA and DHA in aquatic ecosystems is, in fact, algae. By opting for algal-origin omega-3s, you actively participate in preserving marine ecosystems and reducing environmental footprint.

Myth #2

Algal omega-3s are less bioavailable.

Omega-3s sourced from algae exhibit the same bioavailability as omega-3s from fish sources. This means that they function exactly the same way as fish-origin products in the body.

Myth #3

Algal-origin omega-3 is less potent.

Scientists have the capability to select and grow algae with higher levels of omega-3 or even enhance the production of omega-3 in algae by regulating their exposure to UV light, oxygen, sodium, glucose and temperature. This capability means that algae sources can be a more potent source of EPA and DHA.

Myth #4

Fish oil offers better health benefits

Actually, algal omega-3s provide equivalent health benefits to fish oil. This means that consumers following a vegetarian diet don't need to compromise when it comes to getting their intake of essential fatty acids.

Myth #5

Algae are at risk of ocean pollutants, like fish

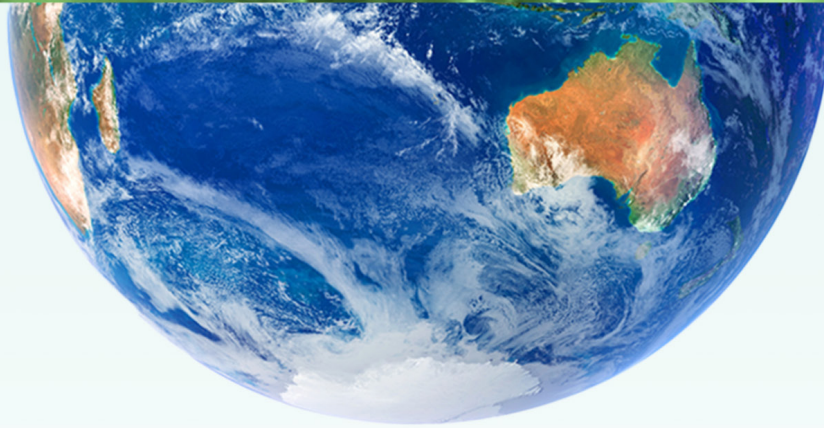
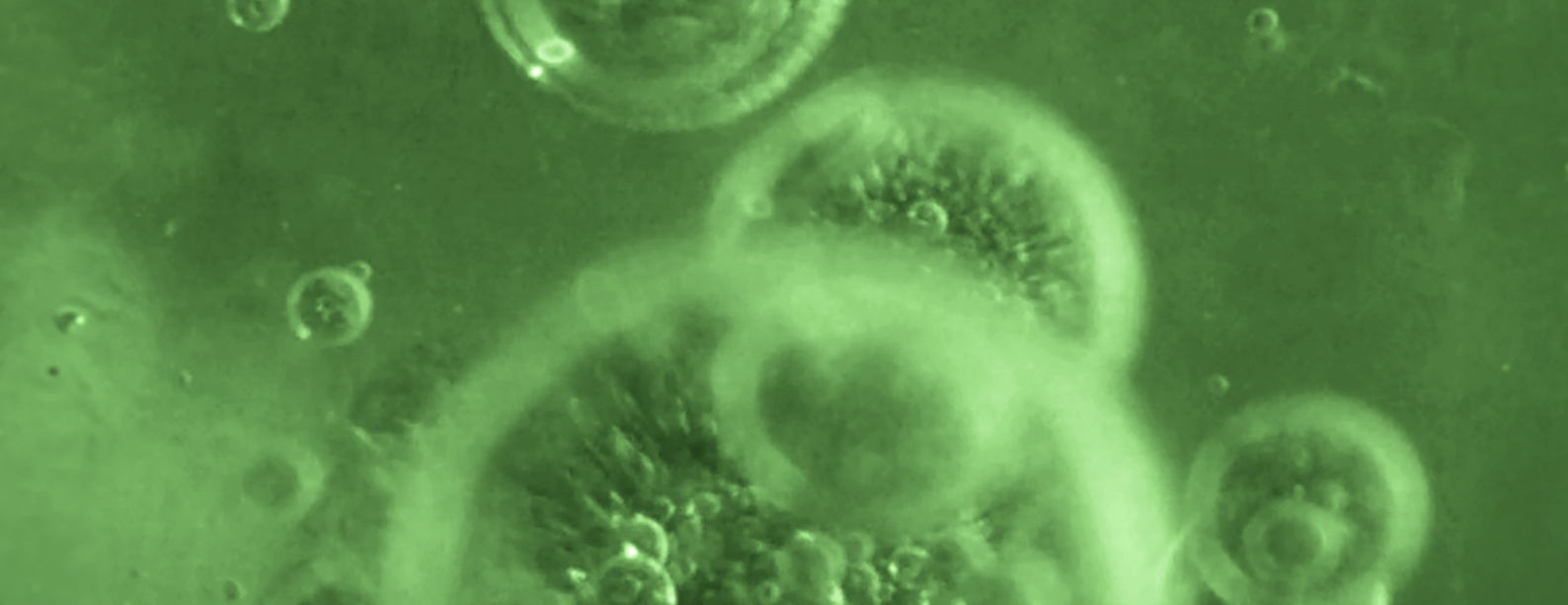
Since it's cultivated in controlled conditions – and also purified – algal oil is free of pollutants that can affect fish oil supplements. Extracted using water instead of solvents, there is no risk of exposure to toxins or environmental contaminants, like polychlorinated biphenyls (PCBs). Moreover, this method results in minimal environmental impact, significantly contributing to a more sustainable future.

Myth #6

Algae supplements are fishy too

Can't tolerate the taste of fish oil? No problem. Algae has a more neutral taste, so consumers don't need to worry about fishy breath!





Introducing *life's*[®]

Innovations that benefit the health of billions of people worldwide don't have to be at the cost of marine life and the earth's ecosystems. **Choose the best algal omega-3 solution for our planet.**

Limitless. Sustainable. Potent. That's *life's*[®].

With our *life's*[®] portfolio, the limitless benefits of omega-3 can be made available to all. *life's*[®] goes straight to the source, is twice as potent as fish oil and scalable; promoting a healthier, more resilient future for the world's growing population.

Discover *life's*[®]OMEGA

Attract a new generation of consumers with *life's*[®]OMEGA – the first and only commercially-available plant-based omega-3 that delivers the essential fatty acids EPA and DHA in a single, sustainable source.



We're leading the way in the omega-3 market to deliver the essential, desirable and sustainable.

As your end-to-end solutions provider, dsm-firmenich is your partner from concept to consumer. We help you get to market faster with the high-quality ingredients, customized solutions and expert services you need to create health benefit-driven, purpose-led omega-3 products.

Connect with an expert to start your innovation journey today.

Connect with us

www.dsm-firmenich.com

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