



There's more to
OMEGA-3s

than meets the

**EYE (HEART,
and BRAIN)**

life's[™] **OMEGA**


Your guide to attracting a new
generation of omega-3 consumers

NUTRITION • HEALTH • BIOSCIENCE



DSM

BRIGHT SCIENCE. BRIGHTER LIVING.



This guide is designed to support you in developing omega-3 products that resonate with today's consumer – by leveraging the lesser-known science-backed benefits of omega-3s eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) that support a more holistic approach to health and highlighting the availability of sustainable, plant-based ingredients that protect our natural resources while meeting growing demand.

Discover how together, we can change the conversation around omega-3s and reach a new generation of consumer.

Ready to dive in?

It's time to re-think how we talk to consumers about omega-3s

The benefits of omega-3s EPA and DHA are well-known. So, why do only less than 20% of the world's population consume the recommended intake of omega-3s of ≥ 250 mg/day?¹

In addition to the wealth of research dedicated to the role of omega-3s in cardiovascular, brain and visual health, the growing body of evidence supports a new wave of lesser-known omega-3 health benefits including immune support, sports performance, quality of sleep and positive mood. These benefits provide brands with an exciting opportunity to make omega-3s relevant to a new generation of consumer.



of the world's
population
consume the
recommended
 ≥ 250 mg/day
of omega-3¹

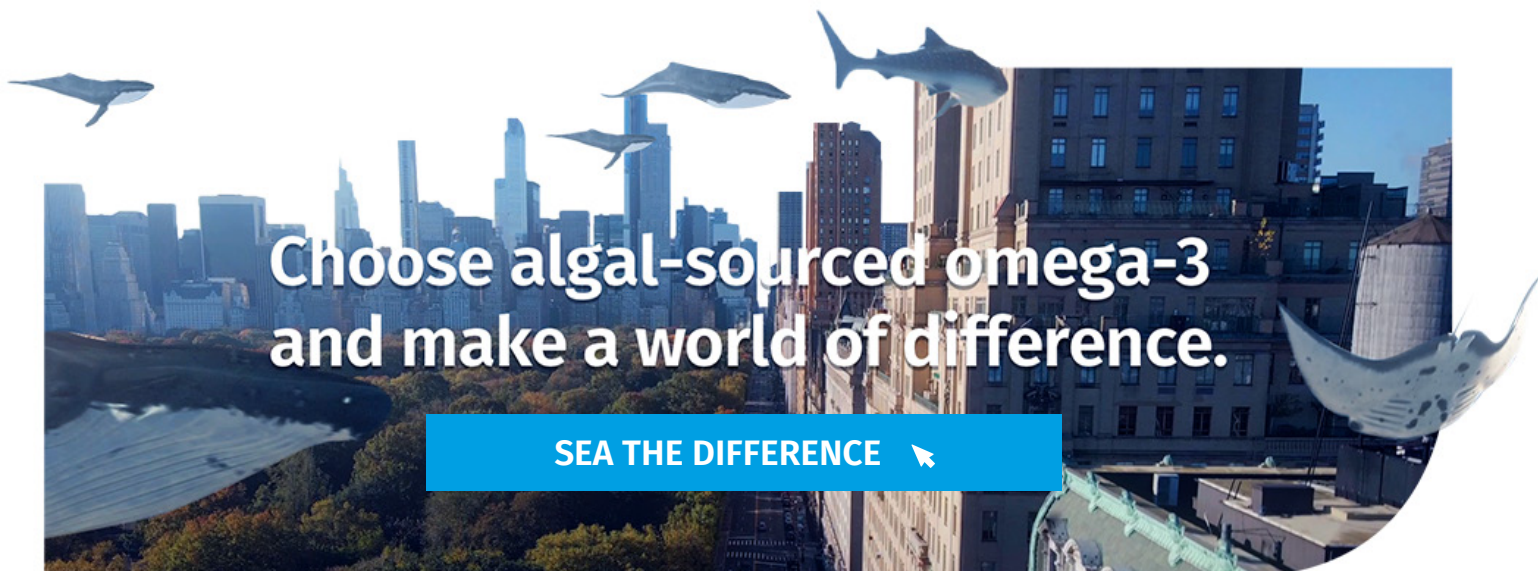
Making sustainable choices

The plant-based movement is also having an impact on how consumers perceive omega-3s.

These essential fatty acids have traditionally been associated with fish oils, but as consumers become more environmentally and socially conscious, there is an ocean of opportunity in omega-3 nutrition.

At the same time, the world's population is growing rapidly, putting increasing pressure on natural resources. The reality is, there are not enough fish to sustainably support the nutritional needs of the growing population and our oceans and wild fisheries are already operating at full capacity causing concerns for the future quality and availability of food. Plant-based omega-3s are therefore a sustainable alternative to fish oil; helping to protect our oceans and planet by helping to overcome significant challenges such as overfishing and climate change.

With over 20 years' experience in omega-3 innovation, DSM is committed to helping brands and manufacturers meet their product development goals with high-quality, consumer-centric and sustainably sourced solutions that support a healthy, sustainable future for us all.



**Choose algal-sourced omega-3
and make a world of difference.**

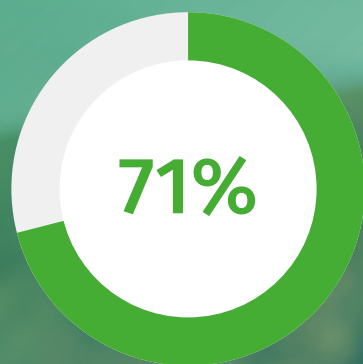
SEA THE DIFFERENCE 

Hello, is it omega-3 you're looking for?

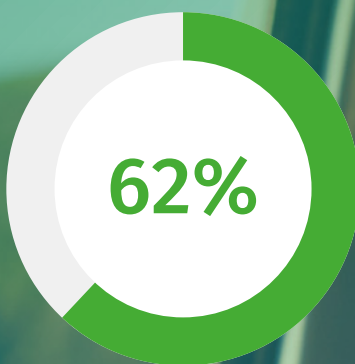
Omega-3s are one of the most recognized nutrients on the shelves, with 71% of consumers reporting that they are familiar with omega-3 supplements.²

However, when it comes to usage, omega-3s fall short. This awareness-behaviour gap can be explained by a number of factors that contribute to purchase barriers for consumers.

Did you know...

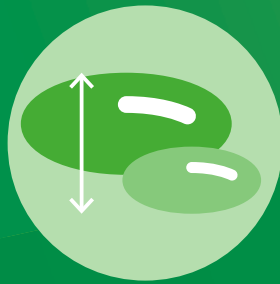


of consumers
are familiar
with omega-3
supplements²



of omega-3 users
say that they
prefer plant-
based options³⁶

Exploring the potential barriers to omega-3 consumption



Large pill size



**Fishy smell or
aftertaste**



**Sustainability
concerns**



**Low understanding
of the consequences of
omega-3 deficiency**



**Lack of awareness of wider
omega-3 health benefits**



Intangible health benefits
The consumer cannot 'feel'
or 'see' the health benefits



Non-vegetarian options
Consumers tend to associate
omega-3s with fish oil

So, how can we make omega-3s more relevant for today's consumers?

Brands need to truly understand the need states of the consumer to develop products that meet their requirements and preferences. For example, did you know that energy levels (tiredness), immunity and mood are amongst some of the biggest concerns for consumers globally, and being empowered to stay active is important to almost two thirds of individuals today?³

Being aware of these trends and concerns is the first step to developing innovative omega-3 solutions that meet the needs and preferences of consumers across the world.

Reframing the benefits of omega-3

Besides the well-known benefits of omega-3s for heart, brain and eye health, EPA and DHA address a myriad of trending health concerns.

But, while these benefits are supported by a growing body of scientific evidence, they are not necessarily top-of-mind for existing omega-3 consumers or individuals seeking more holistic nutritional solutions that will support their overall health and wellness.

Here, we outline four lesser-known, science-backed, health benefits of omega-3s:



Optimizing immunity

A healthy immune system helps to fight infection and disease and studies suggest that nutrients like omega-3s may play an important role in supporting normal immune function. Inflammation is a key component of the immune system and research indicates that, in adults, it is the anti-inflammatory properties of omega-3 LCPUFAs that contribute to normal immune function.⁴ For example, inflammation typically resolves quickly at the end of the immune response, due to activation of specific negative-feedback mechanisms. This helps to minimize damage to tissues and promotes healing after the inflammatory response is triggered. EPA and DHA have been shown to play a part in this process, and those present at the site of inflammation are enzymatically converted to pro-resolving mediators (SPMs) known as resolvins, protectins, and maresins. These molecules, along with others, function together to coordinate the resolution of inflammation and to support healing.^{5,6}

In individuals with low levels of omega-3s, the resolution of inflammation can be delayed which may reduce their resistance to disease and infection. Moreover, with immunity now a top health priority for consumers of all ages, it is likely that more consumers in general will seek solutions targeting this health area. Consumers can help ensure optimal immune function via intake of at least 250mg/d EPA and DHA.⁷



Improving sports performance

As consumers look to lead more active lifestyles, their awareness of the importance of healthy muscle mass, strength and functionality for overall health and quality of life is increasing – and so have the number of sports nutrition solutions aimed at meeting these needs. Research has shown that omega-3 LCPUFAs have many benefits for the categories of sports performance, muscle recovery and cardio-respiratory fitness. A number of studies have, for instance, highlighted the positive effects of EPA and DHA on muscle recovery after exercise and physical activity.^{8,9,10,11} Further reports indicate the benefits of omega-3s on cardio-respiratory fitness, i.e. the ability of the circulatory and respiratory systems to supply oxygen to skeletal muscles during sustained physical activity. This further helps boost performance, as studies have also shown that EPA and DHA can help decrease heart rate and oxygen consumption during exercise.^{12,13,14,15,16}

Additional research has demonstrated that omega-3 LCPUFAs may improve heart rate recovery after exercise.^{17,18} Similar to its effects on the immune system, it is the anti-inflammatory properties of omega-3 LCPUFAs that are gaining the most interest in this field, with omega-3 DHA and EPA supplementation thought to attenuate exercise-induced inflammation. Taken together with their positive influence on muscle protein synthesis, it is clear that omega-3 LCPUFAs have an important role to play in muscle health, performance and can help support active living.



Mood boosting

More than ever, consumers are prioritizing brain health and mood balance. Mood disorders across the lifespan especially have become an increasingly important area of research, and growing evidence demonstrates that omega-3 fatty acids may help to support a healthy mood. During early life, DHA is well-known to have a positive long-term effect on neurocognitive development.¹⁹ It is also recognized as an essential nutrient for overall brain health throughout life, supporting almost every area of brain function, including attention and learning, cognitive health, and both EPA and DHA omega-3s have more recently shown positive effects on the reduction of symptoms associated with mood disorders.

Increasing evidence suggests that lower levels of omega-3 in the plasma is linked to poorer mental health, including those related to mood.^{20,21,22,23} In fact, some studies have shown that depression is less common in nations where people eat large amounts of fish.²⁴ This theory is further supported by research focusing on prenatal depression – a common mood disorder that's present in some women during and after pregnancy. In a 2014 study, results showed that omega-3 supplementation helped women maintain a healthy mood after giving birth.²⁵ Additionally, supplementation with omega-3s has also been shown in some instances to help support and maintain a healthy, balanced mood during pregnancy.



Feeling sleepy?

A good night's sleep is one of the foundations of optimal health. There are now some interesting scientific findings highlighting the benefits of omega-3s for sleep throughout life. Research shows, for instance, that omega-3 LCPUFAs, especially DHA, may improve length and quality of sleep in adults and these benefits have also been demonstrated in children and adolescents.^{26,27,28} One study investigating the effects of 600 mg/d DHA supplementation in children aged between 7-9 years of age found that sleep duration was increased by one hour after omega-3 supplementation.²⁹ A further report showed that teenagers with the highest levels of DHA in their plasma slept 32 minutes longer on the weekends when supplemented with DHA over one week.³⁰ Low levels of DHA are also associated with lower levels of the hormone melatonin, which helps individuals fall asleep.³¹ DHA especially may help to make a good night's rest become a reality, with regular fish consumption shown to improve length and quality of sleep.^{32,33,34}

Omega-3s throughout life

The sooner, the better

In addition to these less well-known health benefits, it's also important to raise the awareness of younger consumers to the benefits of a more preventative, proactive approach to health. A new study has highlighted the associations of risk factors in young adulthood with later life heart disease and stroke risk — bringing new emphasis on early prevention of heart disease in childhood and adolescence.³⁵ Rather than waiting until the older years to improve diet, there is an opportunity for younger adults to take action now to reduce the risk of issues later in life and omega-3s clearly have an important role to play here.

SUPPORTING OPTIMAL HEALTH THROUGH LIFE



Supporting optimal infant growth and development as well as balancing mood for pregnant mothers

Contributing to muscle strength and function to support a busy, active lifestyle

Improving quality of sleep to help provide balance

Optimizing immunity for the whole family

Reducing the risk of heart disease with a preventative, proactive approach to health

Meet the growing demand for plant-based and sustainable products

There's no doubt about it, plant-based diets have hit the mainstream and they're here to stay. In the eyes of the consumer, plant-based alternatives not only help them to make healthier choices, but they also empower them to do their bit to protect the planet through the products that they purchase. In fact, 62% of omega-3 users say they prefer plant-based options, and this preference is even higher in non-users.³⁶

While this represents an exciting opportunity for dietary supplement manufacturers to develop plant-based options, there is still work to be done to educate consumers about natural algal-sources of omega-3.³⁷ Plant-based has certainly impacted the omega-3 market, but with the majority of consumers associating omega-3s with fish oil, could the unfamiliarity of plant-based, algal options be a barrier for some consumers when it comes to purchase and consumption? Or perhaps consumers think algal-sources don't offer the same health benefits that fish oils do. How then can we convince consumers that plant-based alternatives can meet their preferences for more sustainable solutions without compromising on health?



Mythbusters: algal omega-3s

Below, we aim to demystify algal omega-3 and ask, does it really match up to fish oil?

1 **Myth: EPA and DHA are produced by fish**

Fish are not actually able to produce EPA and DHA omega-3 themselves and can only get their omega-3 content by eating microalgae in the ocean. So, while fish are recognized as a major source of omega-3s, algae is considered the primary source of these nutrients.

2 **Myth: Algal omega-3s are less bioavailable**

There is no difference in the bioavailability of omega-3s from algal source vs those from fish, which means that they work in exactly the same way that fish oil would in the body.

3 **Myth: Algal sources of omega-3 are less potent than fish oil**

Scientists are able to select and grow algae that are higher in omega-3s or increase the amount of omega-3s produced by the algae by adjusting their exposure to UV light, oxygen, sodium, glucose and temperature. This means that algal sources can be a more optimal source of EPA and DHA.

4 **Myth: Omega-3 from fish oil offers greater health benefits**

Algal omega-3 provides the equivalent health benefits as fish oil — meaning those following a vegetarian or vegan diet don't have to compromise when it comes to getting their intake of essential fatty acids.

5 **Myth: Algal sources carry the same risk of ocean pollutants as fish**

Because it's grown under controlled conditions and purified, algal oil is free from pollutants that may be present in fish oil supplements. Extracted using water – not solvents – there's no risk of exposure to toxins or environmental contaminants like polychlorinated biphenyls (PCBs). This process also results in a very small environmental footprint, which goes a long way towards promoting a more sustainable future.

6 **Myth: Algae will still taste fishy**

Can't tolerate the taste of fish oil? No problem. Algae has a more neutral taste and is therefore not associated with any complaints around fishy breath!

So, you see, there's nothing fishy here. It's time to get on board the plant-based trend with omega-3s.

Introducing *life's*TMOMEGA

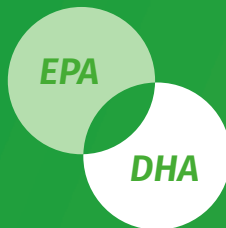
We believe the future of omega-3 nutrition lies in the power of algae. *life's*TMOMEGA is a unique, plant-based alternative to fish oil. Made from algae, *life's*TMOMEGA contains a minimum of 500 mg/d of EPA and DHA (with a combination of min 150 mg/d EPA and min 300 mg/d DHA), making it 85% more potent than omega-3 derived from fish oils.* The first and only commercially available plant-based omega-3 that delivers the health benefits of EPA and DHA in a single source, *life's*TMOMEGA can help you attract a new generation of omega-3 users; promoting a healthier, more sustainable future.

**Based upon average 270 mg/g EPA+DHA concentration for standard fish oil

A deep-dive into *life's*TMOMEGA



100% plant-based,
sustainable source



Single source of
EPA and DHA



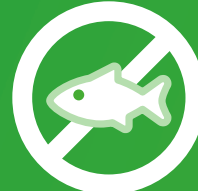
85% more potent
than fish oil



Free from
environmental and
marine contaminants



Non-GMO,
solvent-free and natural
triglyceride form



Minimal fishy
taste and smell