

GREENSHELL™ MUSSELS

New Zealand's sustainable 'superfood'

New Zealand Greenshell™ mussels are an absolute powerhouse of nutrition and, with one of the lowest carbon footprints per 100g of all animal proteins studied* they represent one of the world's most sustainable 'superfoods' too.

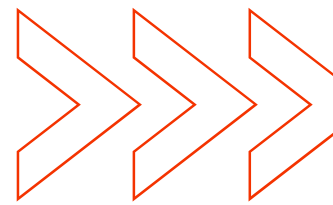
High in protein, and an excellent source of iron, B12, selenium, iodine and niacin, the research into the health benefits of our Greenshell™ mussels keeps getting stronger. Keen to understand more? Deep dive here....

PROTEIN	FAT	IRON	B12	SELENIUM	IODINE
15.9g	2.7g	4.4mg	325% RDI	109% RDI	107% RDI

Source: The Concise New Zealand Food Composition Tables, 14th Edition 2021. Per 100g serving.



*Study by environmental consultancy, thinkstep-anz on the Life Cycle Assessment (LCA) of New Zealand mussels, 2021



We all know seafood is full of fabulous omega-3s. But did you know New Zealand Greenshell™ mussels are also packed with nutrients such as iron, B12, iodine, selenium, magnesium and niacin that are beneficial for our health and wellbeing?

Combined with the benefits of the omega-3s on heart health, it's no wonder these morsels are considered a superfood. Lets dig into the benefits.



IRON

Anaemia affects a third of the world's population, with around half of the cases caused by iron deficiency. Iron-deficiency anaemia occurs when there are not enough healthy red blood cells in the body. Symptoms of anaemia can include extreme fatigue, weakness, pale skin, chest pain, rapid heartbeat or shortness of breath, headache, dizziness or cold hands and feet. Red meat is a good source of iron but what if you don't eat red meat?

THE GOOD NEWS: New Zealand Greenshell™ mussels are an **excellent source of iron**, with a 100g serving containing the same amount of iron as a 150g piece of steak (37% of your Recommended Dietary Intake).

The 15.9g of protein also found in a 100g serving further increases the bioavailability of the iron, making mussels a great alternative to red meat.



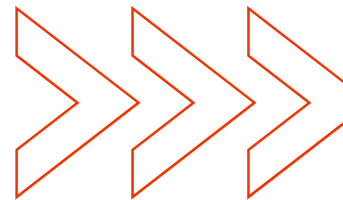
B12

In the US and the UK, close to 20% of those older than 60 have a vitamin B12 deficiency. Vitamin B12 is needed to make red blood cells, which carry oxygen to all parts of your body. Without enough red blood cells, your tissues and organs don't get enough oxygen and your body can't work as well.

B12 deficiency causes a variety of symptoms, including fatigue, headaches, depression, pale or yellow skin, mental impairment, and pain and inflammation in the mouth and tongue. There is also a high (40%+) prevalence of B12 deficiency in hypothyroid patients.

THE GOOD NEWS: New Zealand Greenshell™ mussels are an **excellent source of B12**, with a 100g serving containing more than three times the Recommended Dietary Intake.





IODINE

Iodine is one of the most common nutrient deficiencies and is estimated to affect 35-45% of the world's population. Severe iodine deficiency can result in hypothyroidism (insufficient production of the thyroid hormone by the thyroid gland) and goitre (swelling of the thyroid gland in the neck). Symptoms of low levels of thyroid hormone include fatigue, increased sensitivity to cold, constipation, dry skin, weight gain, puffy face, muscle weakness, and may even affect mental health causing depression and memory loss.

THE GOOD NEWS: New Zealand Greenshell™ mussels are an **excellent source of iodine**, with a 100g serving containing over 100% of the Recommended Dietary Intake.



SELENIUM

Selenium helps with the thyroid too. Selenium is a trace mineral essential for human health. Selenium plays a vital role in the immune system, performing antioxidant activities and converting the thyroid hormone. It also contributes to the maintenance of normal hair and nails and contributes to normal growth and development (in children). Selenium deficiency impacts up to 1 billion people worldwide. It has been implicated in cardiovascular disease, infertility, myodegenerative diseases, and cognitive decline.

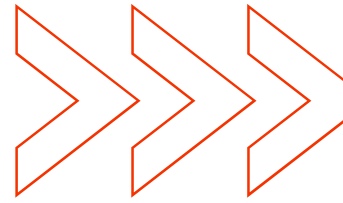
THE GOOD NEWS: New Zealand Greenshell™ mussels are an **excellent source of selenium**, with a 100g serving containing over 100% of the Recommended Dietary Intake.



MAGNESIUM

Magnesium is among the world's most common minerals yet, according to a study conducted in 2018, 'Approximately 50% of Americans consume less than the Estimated Average Requirement (EAR)'. Low levels of magnesium in your blood levels has been associated with type 2 diabetes, metabolic syndrome, elevated C-reactive protein (the level of CRP increases when there's inflammation in the body), hypertension, cardiovascular disease, osteoporosis, migraine headache, asthma, and colon cancer. And yes, you guessed it, magnesium deficiency can also have a direct impact on thyroid function. Iron, iodine, selenium and magnesium are all important for thyroid health.

THE GOOD NEWS: New Zealand Greenshell™ mussels are a **good source of magnesium**, with a 100g serving containing 28% of the Recommended Dietary Intake.



NIACIN (ALSO KNOWN AS VITAMIN B3)

Niacin is a major component of two coenzymes involved in cellular metabolism. It plays a key role in cell signalling and making and repairing DNA, in addition to acting as an antioxidant.

Deficiency is characterised by skin problems, memory loss, and digestive problems. Niacin can help treat many conditions. It's necessary for normal neurological function, normal energy release from food and contributes to the reduction of tiredness and fatigue.

THE GOOD NEWS: New Zealand Greenshell™ mussels are an **excellent source of niacin**, with a 100g serving containing 39% of the Recommended Dietary Intake.

ALL COMPELLING REASONS TO CONSUME MUSSELS RIGHT? BUT THE GOOD NEWS DOESN'T STOP THERE....

Let's talk more about some recent scientific studies hot off the press, highlighting the benefits of Greenshell™ mussels on normal joint function and comfort. There has been a passionate team of Greenshell™ mussel scientists beaver away in a lab for many years on the 'Musseling up: 2.0' project and their work is just coming to the fore. It should be noted that these studies relate to the consumption of Greenshell™ mussel powder however the implications of Greenshell™ mussels as a functional food are discussed in the papers. The research sits on top of over 30 years of innovation and clinical testing on Greenshell™ mussel oils and powders.

Knee pain in post-menopausal women

A recently-published clinical trial has shown that post-menopausal women suffering from knee pain can benefit from taking Greenshell™ mussel powder. The study, conducted at Massey University, found that after 12 weeks of taking mussel powder*, participants reported significantly less joint pain AND more joint comfort in their knees. The study has been published in the global journal Frontiers in Medicine.

Recovery post muscle damage

Findings from another study outline the potential benefits of Greenshell™ mussel powder for supporting muscle recovery in untrained men.

Twenty untrained adult men were recruited and randomly assigned the Greenshell™ mussel powder or placebo treatment. They then completed an exercise that induced muscle damage. Muscle function, soreness and oxidative stress and inflammation were measured before exercise and at intervals thereafter. The Greenshell™ mussel powder promoted muscle function recovery, significantly improving key measures 48 and 72 hours post exercise including faster reduction of soreness. (Further research is required to investigate whether Greenshell™ mussel powder provides similar benefits in untrained women and trained athletes). The full study can be accessed here.

*Sanford's, PERNAULTRA™ Greenshell™ mussel powder.



Mobility and joint health

Osteoarthritis is the most common degenerative joint disease involving cartilage and surrounding tissues. It is a leading cause of disability worldwide, particularly among the elderly. Greenshell™ mussel powder has been found to be beneficial in improving both the symptoms and functionality of joints in diseases such as rheumatoid arthritis and osteoarthritis. The underlying mechanisms explaining these effects are in the activity of bioactive lipids in New Zealand Greenshell™ mussel extracts including eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). There have been many studies on this topic but one of the more recent papers can be accessed [here](#).

CONCLUSION

Our little morsels of (green) gold sustainably farmed here in New Zealand waters are indeed an incredible superfood. High in protein, and an excellent source of 5 essential vitamins and minerals, they really are a powerhouse of nutrition.

Consume simply as part of a balanced diet, or amplify the potential impact of the anti-inflammatory benefits of their bioactive compounds by seeking a Greenshell™ mussel extract supplement.

Follow Aquaculture New Zealand @aquaculturenz on Instagram and Facebook for more inspiration, including some great recipes and suggestions on how to incorporate Greenshell™ mussels into your diet.

Notes:

Levels outlined here are approximate values for blanched NZ Greenshell™ mussels and are based on [food composition tables published by Plant and Food NZ. Recommended Dietary Intakes \(RDIs\) may vary by country.](#)

Variation will naturally occur due to seasonality and location of where mussels are grown.

We've done our best here to link to various research papers and articles that summarise the key nutritional facts. Care should be taken to review the underlying studies where possible.

The suggestions here should be used for general educational purposes only and not interpreted as customised medical advice or care. Always seek the guidance of a doctor or other qualified health provider to figure out what's best for you.