



Deep Blue Health New Zealand Ltd
A certified nutraceutical &
health supplement company



Green Lipped Mussel

Perna Canaliculus

JOINT & BONE HEALTH, JOINT MOBILITY AND REPAIR

NATURALLY RICH IN OMEGA 3 AND GLYCOSAMINOGLYCANS (GAGs)



100% NEW ZEALAND



PURE - POTENT - TRACEABLE

ONE OF NATURE'S MOST POWERFUL FOODS

New Zealand native Green Lipped Mussel (*Perna canaliculus*) is one of nature's most powerful functional foods, containing a range of bioactive ingredients that help promote joint health. Deep Blue Health Green Lipped Mussel products contain a proprietary blend of mussel powder, GlycOmega™, that has been clinically proven to reduce joint pain and increase joint mobility.



NATURAL JOINT CARE



Found only in the pristine waters of the New Zealand coastline, Green Lipped Mussel (GLM) first caught the attention of researchers when they observed that osteoarthritis and rheumatoid arthritis were virtually non-existent among the indigenous coastal Maori population. Not only were Maori elders free of the degenerative joint diseases common amongst Western Cultures, they could still perform even the most rigorous of physical tasks – right into old age. Their ease of mobility and lack of joint pain was attributed to their high consumption of Green Lipped Mussels.

Potent Joint Health Benefits

GLM is highly nutrient-dense, containing protein, complex carbohydrates, polyunsaturated marine oils and minerals. However, it is the supplement's high levels of glycosaminoglycans, Omega 3 fatty acids and chondroitin that deliver the joint-protective benefits.

- **Glycosaminoglycans (GAGs)** are principal components of cartilage and the synovial fluid found in joints. They help promote flexibility and elasticity within the joints. The severity of arthritis symptoms is directly related to the loss of GAGs within the joint and surrounding cartilage.
- **Omega 3 fatty acids** help manage inflammation, reducing the pain and swelling associated with arthritis and other painful joint conditions
- **Chondroitin Sulphate** is a major component of synovial fluid and cartilage and helps reverse the arthritic process.

CLINICALLY PROVEN

Numerous clinical studies have demonstrated the efficacy of Green Lipped Mussel (GLM) supplements in relieving arthritic pain, joint pain and other inflammatory conditions. Below is a summary of some of these clinical studies:

'A randomized double-blind placebo-controlled trial to investigate the effectiveness and safety of a novel green lipped mussel extract -BioLex® -for managing pain in moderate to severe osteoarthritis of the hip and knee'
Stebbins, S. et al. ¹

A double-blind, placebo-controlled study by the University of Queensland's Medical School evaluated the efficacy of GLM supplementation in 80 patients with severe arthritis of the hip and knee. Half the participants were prescribed GLM and the remaining half was given a placebo. Within eight weeks, the patients taking the Green Lipped Mussel supplement had reported a noticeable improvement in joint mobility and a reduction in Paracetamol use. The placebo group reported no change.

'Clinical efficacy and safety of Lyprinol, a patented extract from New Zealand green-lipped mussel (Perna Canaliculus) in patients with osteoarthritis of the hip and knee: a multicenter 2-month clinical trial'
S. H. Cho, Y. B. Jung, S. C. Seong et al. ²

A study published in the European Journal of Clinical Immunology showed that 80% of patients experienced an improvement in arthritis pain after taking Green Lipped Mussel. 60 patients with symptomatic arthritis of the hip and knee were prescribed Green Lipped Mussel supplements for eight weeks. After four and eight weeks, 53% and 80% (respectively) of patients reported a significant reduction in pain and improvement in joint function.

'Perna canaliculus Lipid Complex PCSO-524™ Demonstrated Pain Relief for Osteoarthritis Patients Benchmarked against Fish Oil, a Randomized Trial, without Placebo Control'
Zawadzki, M. Janosch, C. and Szechinski, J. ³

A study in the journal Marine Drugs compared the efficacy of Green Lipped Mussel and Omega 3 Fish Oil in managing pain in 50 patients with osteoarthritis. After 12 weeks, the patients prescribed fish oil reported no improvement in symptoms, while the patients prescribed Green Lipped Mussel reported a significant reduction in pain, as well as an improvement in joint mobility and movement.

'Novel anti-inflammatory omega-3 PUFAs from the New Zealand green-lipped mussel, Perna canaliculus'
Treschow, A, Hodges, L, Wright, P, Wynne, P, Kalafatis, N and Macrides, T ⁴

Australia's RMIT University and SGE International LTD embarked on a study to determine the mechanism by which Green Lipped Mussel regulates inflammation. They found that the Omega 3 fatty acids in Green Lipped Mussel inhibited key inflammatory enzymes leukotriene and cyclo-oxygenase. This means GLM has potential as a viable and safe alternative to Non-Steroidal Anti-inflammatory Drugs (NSAIDs).

[Click here to find out more about Deep Blue Health Green Lipped Mussel Supplement.](#)



¹ BMC Complement Altern Med. 2017; 17: 416. Published online 2017 Aug 22. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5568208/>

² European Annals of Allergy and Clinical Immunology, vol. 35, no. 6, pp. 212–216, 2003

³ Marine Drugs: June 2013 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3721214/>

⁴ 2007, Comparative Biochemistry and Physiology - B Biochemistry and Molecular Biology, vol. 147, no. 4, pp. 645–656. <https://researchbank.rmit.edu.au/view/rmit:8771>

CLINICALLY PROVEN - MORE STUDIES

'New Research and a Clinical Report on the Use of Perna Canaliculus in the Management of Arthritis'

R.V Kendall, J.W. Lawson⁵

Research has been conducted on the efficacy *Perna canaliculus* (Green Lipped Mussel) as an alternative arthritis treatment since the 1970s. This report summarizes previous studies and looks at ongoing research in both animals and humans which demonstrate that *Perna canaliculus* is particularly effective against Grade I and II arthritis. Preliminary results indicate that *Perna* is effective in reducing the pain and inflammation associated with arthritis as well as promoting regeneration of articular cartilage which can result in greater mobility.

'Systematic review of the nutritional supplement Perna Canaliculus (green-lipped mussel) in the treatment of osteoarthritis'

S. Brien P. Prescott B. Coghlan N. Bashir G. Lewith⁶

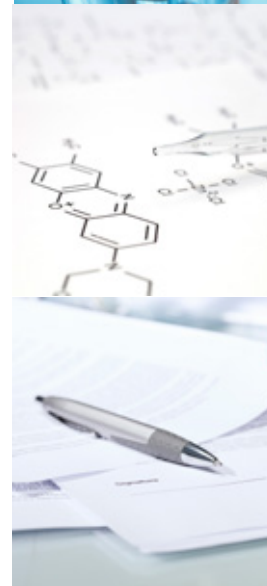
This systematic review evaluates the efficacy of the nutritional supplement *Perna Canaliculus* (green-lipped mussel, GLM) in the treatment of osteoarthritis (OA) and substantially adds to previous work by focussing solely on GLM use in OA as well providing a re-analysis of the original trial data. All four studies assessed GLM as an adjunctive treatment to conventional medication for a clinically relevant time in mild to moderate OA. The data from the two more rigorous trials, in conjunction with our re-analysis of original data suggests that GLM may be superior to placebo for the treatment of mild to moderate OA. As a credible biological mechanism exists for this treatment, further rigorous investigations are required to assess efficacy and optimal dosage.

'Treatment of Asthma with lipid extract of New Zealand Green lipped Mussel: a randomised clinical trial'

Emelyanov, A. et al.⁷

A double-blind, placebo-controlled study in the European Respiratory Journal evaluated the use of Green Lipped Mussel for the management of asthma, another chronic inflammatory condition. 46 patients with atopic asthma were prescribed either a Green Lipped Mussel supplement or a placebo for eight weeks. The patients given Green Lipped Mussel experienced a significant reduction in day time wheezing, improvement in peak expiratory flow and reduction in expired hydrogen peroxide (H₂O₂) compared to the placebo group.

[Click here to find out more about Deep Blue Health Green Lipped Mussel Supplement.](#)



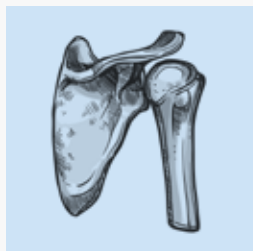
⁵ Roger V. Kendall, PhD., Vice President of Research and Development, Food Science Corporation, John W. Lawson, PhD., Department of Microbiology and Molecular Medicine, Clemson University & Lloyd A. Hurley, MD., Corrales, New Mexico

⁶ QJM: An International Journal of Medicine, Volume 101, Issue 3, March 2008, Pages 167–179, <https://doi.org/10.1093/qjmed/hcm108>

⁷ European Respiratory Journal 2002 20: 596-600

DEEP BLUE HEALTH GREEN LIPPED MUSSEL ASSISTS WITH JOINT MOBILITY AND HEALTH BY SUPPORTING THE **STRUCTURAL INTEGRITY OF CONNECTIVE TISSUE.**

Key Joint Areas of the Body:



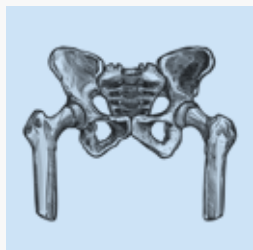
Shoulder:

The most likely joint to have Rheumatoid Arthritis and Osteoarthritis or a severe complicated fracture.



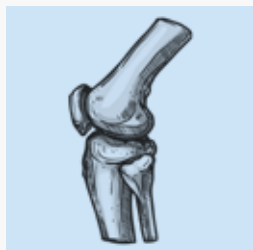
Wrist:

Wrist pain is often caused by sprains or fractures from sudden injuries. But wrist pain can also result from long-term problems, such as repetitive stress, arthritis and carpal tunnel syndrome.



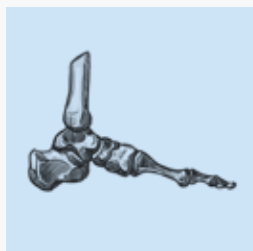
Hip:

Hip cartilage can be damaged by arthritis, where bones rub against each other, eroding the ends and making the joint stiff and painful.



Knee:

The largest joint in the human body, the knee joint is more susceptible to trauma, Rheumatoid Arthritis and Osteoarthritis, and prone to cartilage degeneration.



Foot:

With 42 muscles, 26 bones, 33 joints, and at least 50 ligaments, the foot joint is susceptible to sprains, stress fractures, heel spurs and Achilles and inflammation.

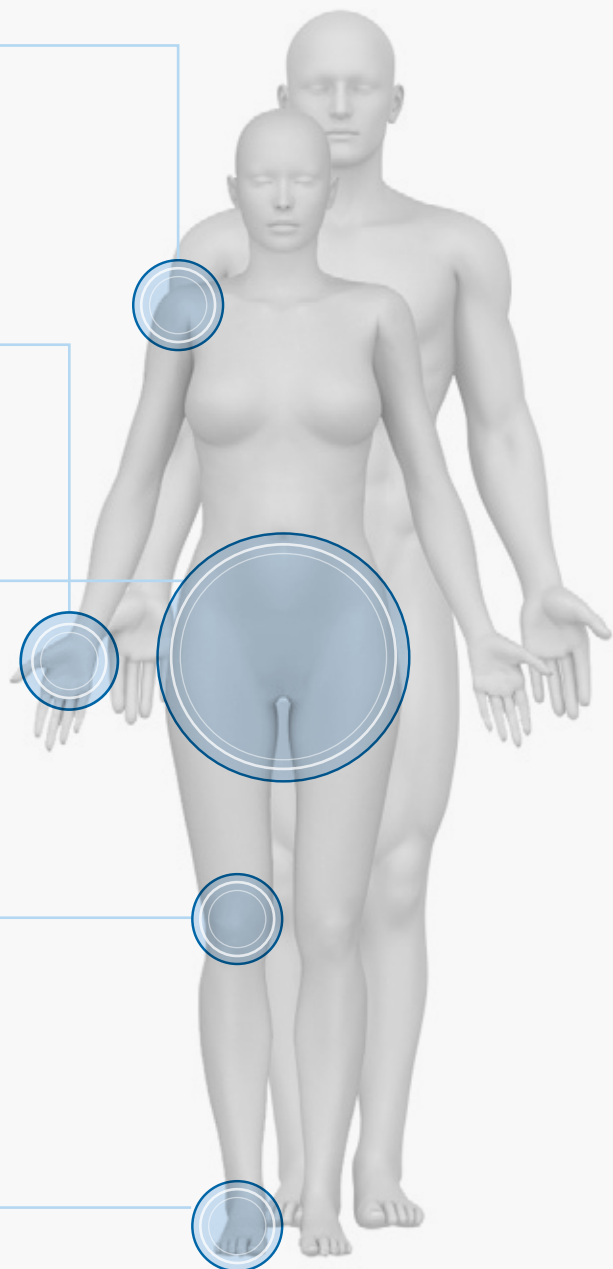


Diagram 1.

UNIQUE TO NEW ZEALAND

Green Lipped Mussel is an optimum supplement for joint and bone health, helping the body naturally repair and rebuild damaged cartilage, assisting the body during joint discomfort.

GREEN LIPPED MUSSEL COMPOSITION AND THERAPEUTIC BENEFITS

Nutritional Information:

ANALYTE	PER 100 g
Protein	50 to 70g
Lipids	6 to 15g
Ash	15 g
Moisture	0 to 6g
Fats - Total	1.5g
Glycosaminoglycan's (GAG)	2%

Table 2. Medicinal Action and bioactive compounds of Perna Canaliculus.

SPECIES	BIOACTIVE COMPOUNDS	MEDICINAL ACTION
Perna canaliculus	Protein Omega 3's Lipids Vitamins & Minerals Taurine Glycosaminoglycan's Chondroitin Sulphate Glycogen Magnesium and Zinc	✓ Arthritis relief ✓ Inflammation management ✓ Joint and connective tissue support ✓ General nutritional support.



HOW WE CREATE OUR GREEN LIPPED MUSSEL PRODUCTS?

Deep Blue Health NZ is recognised as a global leader in the development of high quality natural health products for human and pet care. Our GLM are sustainably sourced from marine farms in the pristine Marlborough Sounds and all our supplements are batch tested and verified to ensure the highest standards of quality.

We use a range of extraction processes to produce the raw ingredients for our products. Each extraction process is designed to preserve nutrient content, ensuring that our products contain the highest levels of Omega 3 Fatty Acids, Glycosaminoglycans and Chondroitin.

1. Freeze Drying/Lipholization

After harvesting, the mussels are removed from their shells and powdered in a purpose-built extraction plant. We freeze dry the mussel meat at a controlled temperature to maintain the integrity of the bioactive compounds and ensure the stability of the nutrient content.

2. Snap Drying

In a drying operation, liquid, slurry, or puree material is applied as a thin layer onto the outer surface of revolving drums that are internally heated by steam. After about three-quarters of a revolution from the point of feeding, the product is dried and removed with a static scraper. The dried product is then ground into flakes or powder. Drum drying is one of the most energy efficient drying methods.

Snap drying (drum drying) is faster than freeze drying and also locks in more nutrients. Importantly, it minimises the key risk factors that can impact the quality of GLM powder, including enzymatic degradation and exposure to excess heat and air.

After extraction, we enhance both our snap-dried and freeze-dried products with additional refined powder and natural enzymes. We produce all our GLM powders according to the licensed and trade marked Glyco Omega™ approach. To accommodate our customers' differing needs, we offer our GLM as both hard-shell and soft-shell products in varying concentrations.

3. With Flash Drying/ Spray Drying

Flash dry processing, uses fresh uncooked mussel meat mixed in a liquid suspension. The process begins by spraying particles of the mussel meat into a current of hot air, creating a mist of fine droplets. The moisture in the droplet particles is evaporated in nano seconds to create a nutrient rich mussel powder.

4. Supercritical carbon dioxide (ScCO₂) extraction Oil Extraction

Oil extraction (or Supercritical Fluid Extraction) refers to the process of separating an active component (the extractant) from another (the matrix) using supercritical fluids. It is the most effective and efficient way to extract bioactive ingredients.

GLM supplements produced using oil extraction are significantly higher potency than supplements produced via Freeze Drying or Snap Drying, meaning much lower doses are required to produce a therapeutic benefit.

[Click here to buy Deep Blue Health Green Lipped Mussel Supplement.](#)



TAILORED JOINT CARE AND INFLAMMATION MANAGEMENT

We have a range of Green Lipped Mussel products to suit your needs:



Green Lipped Mussel

Glycosaminoglycans, joint health and mobility, rich in omega 3

500mg (equiv. to fresh 2500mg) x 30, 60 or 90 capsules



PurePets Green Lipped Mussel

Glycosaminoglycans, joint support, pet health

200mg (equiv. to fresh 1000mg) x 120 capsules



GlycOmega™-PLUS

Clinically researched, joint health, omega-3, superior strength

500mg (equiv. to fresh 4000mg) x 30, 60 or 90 ocean capsules



Joint Care Ultra

Athletes and active people, Joint health and mobility, Rebuilds damaged cartilage

820mg x 30, 60 or 90 capsules



Glyco-PLUS Creme

Joint health and mobility, rich in omega 3, tension relief

15ml and 30ml pump bottles



HOW IS GREEN LIPPED MUSSEL MANUFACTURED?



[Click here to buy Deep Blue Health Green Lipped Mussel Supplement.](#)





FREQUENTLY ASKED QUESTIONS

Q. What is Green lipped Mussel?

A. Green lipped Mussel (GLM) is a type of shellfish native to New Zealand waters; and is considered one of the most sustainable forms of seafood. GLM is well-recognised for its ability to protect and regenerate joints and cartilage.

Q. How can GLM assist with joint health?

A. Ageing and physical can cause wear and tear to joints, causing joint cartilage to become thin and brittle. GLM contains bioactive compounds such as glycosaminoglycans which can repair and rebuild damaged cartilage.

Q. Why do GLM capsules have a strong flavour and smell?

A. As they are made from fresh mussels, GLM capsules retain their natural flavour and smell.

Q. Where is GLM farmed?

A. GLM is farmed on the coastal waters of the North and South Islands of New Zealand. New Zealand's mussel farms are closely monitored and regulated by the New Zealand Ministry for Primary Industries (MPI) to ensure they adhere to sustainable and environmentally responsible farming practices.

Q. What are the benefits of Deep Blue Health GLM?

A. Our GlycOmega™ GLM powder is a high quality marine food supplement made using worldclass freeze-drying and extraction techniques. GlycOmega™ is naturally rich in protein, complex carbohydrates, polyunsaturated marine oils and minerals. Key nutrients include mucopolysaccharides (such as glucosamine), omega 3 fatty acids and trace elements, which are needed for the maintenance and repair of healthy connective tissue, cartilage and muscle.

Q. What causes arthritis pain?

A. The pain characteristic of arthritis is related to the high level of inflammation in the joints. While over-the-counter pain medications such as Ibuprofen may temporarily relieve the pain, they do not address the underlying cause: local or systemic inflammation. Our body contains substances which respond to inflammation. Any injury or infection will cause the body to trigger a response, which is the cause of the pain. In arthritis sufferers, this inflammation-pain signal cycle is never switched off, causing the chronic pain.

Q. Can I take GLM even if I currently don't have any joint issues?

A. Absolutely. Taking GLM will help support the structural integrity of your joints and may prevent age related tissue damage.

Q. How soon can I expect to see benefit from taking GLM supplements?

A. Results vary from person to person, but most customers report positive effects within four weeks of taking the supplement.

Q. How do I order GLM capsules?

A. Follow this link: www.deepbluehealth.co.nz/products/green-lipped-mussel or contact our team on +64 9 444 2886.

Q. What are encapsulation materials?

A. Among all materials, the most widely used for encapsulation in food applications are polysaccharides. Proteins and lipids are also appropriate for encapsulation. Also, another goal of employing encapsulation is to prevent reaction with other components in food products such as oxygen or water.