Some brands claim that only a stripped and isolated Chondroitin Sulfate and Glucosamine combination will improve joint health.

HERE ARE THE FACTS:

• Chondroitin Sulfate can be low molecular weight and bioavailable, but it still isn’t the active ingredient; it is only one of many.
• Larger molecular weight Chondroitin Sulfate molecules are digested like all other nutrients in the body and will be broken down, absorbed and utilized.
• Chondroitin 4 & 6 Sulfates are only two of five important glycosaminoglycans used for joint repair and health.
• Perna provides all necessary building blocks for health & rebuilding of joints. It contains all major classes of GAGs including the five most important GAGs for joint health.
• The five glycosaminoglycans that are most important for joint and connective tissue health are: Chondroitin 4 & 6 Sulfates are found in connective tissues and joints; they modulate destructive enzymes to keep them from breaking down healthy joint cartilage. They also attract and bind water to give elasticity and protection to joints. Keratin Sulfate and Dermatan Sulfate act as glue to bind collagen to the proteoglycans to produce cartilage. Hyaluronic Acid is the backbone of the proteoglycan structure and is the principal component of synovial fluid.

• Several clinical studies have been published that demonstrate the effectiveness of Perna against Osteoarthritis\(^1\)\(^2\) and its anti-inflammatory activity.\(^2\)\(^6\)\(^7\)\(^8\)
• Perna also provides a full array of factors, which makes it less likely that the healing process will be stopped due to missing components\(^5\) such as: Vitamin C, Manganese, Zinc, Copper, Iron, Silicon, Glucosamine, Hyaluronic Acid, and others. These factors aren’t provided in other stripped formulas, but are present in Perna.

CONCLUSIONS:

• Chondroitin Sulfate can be low molecular weight but it still isn’t the only active ingredient in a joint formula. It is just one of many supporting components needed for joint healing, health, and support.
• Perna goes beyond targeted Chondroitin Sulfate/Glucosamine products to provide a broader therapeutic response to joint problems.\(^2\)\(^6\)\(^7\)\(^8\)
• Glyco-Flex\(^2\) products are based on the healing properties of *Perna canaliculus*, which have been combined with Glucosamine, Methylsulfonylmethane, Vitamin C, N,N-Dimethylglycine, Vitamin E, Selenium, Glutathione, Grape Seed Extract, and Manganese for additional health benefits.
• Perna mussel has been used for over 20 years in both the human and animal health fields. Research on Perna has found it to be beneficial in dealing with pain, stiffness, and swelling of joints\(^2\)\(^6\)\(^7\)\(^8\) as well as being effective in supporting joint mobility.\(^5\)
Some brands claim Perna mussel is marketed as a source of Chondroitin Sulfate.

HERE ARE THE FACTS:
• Vetri-Science® Laboratories of Vermont does not have a Glucosamine/Chondroitin product. What we do have is Perna, which is far superior to any product containing chemically refined and isolated factors. Perna is not a purified, isolated and stripped product. Perna is an all-natural whole food.
• Glyco-Flex® does not contain a Perna extract. Perna from Vetri-Science® is freeze-dried whole to ensure that all of its components are intact and in their most bioavailable form.
• Even though Perna intrinsically contains 8-10% naturally occurring Chondroitin Sulfate it is not sold as a specifically Chondroitin Sulfate product.
• Perna supplies essential and non-essential amino acids, all classes of glycosaminoglycans (GAGs) and fatty acids. It provides the branched chain amino acids that muscles use for energy: Isoleucine, Leucine, and Valine. It provides Methionine, a sulfur based amino acid that helps form SAMe. It provides Cysteine, a sulfur based amino acid that is the rate-limiting factor in making Glutathione (GSH). It also provides Glycine, another amino acid involved in GSH production.
• It contains naturally occurring antioxidants. The fatty acids in Perna help balance the body’s inflammatory response. Perna also contains a glycoprotein factor that helps modulate inflammation. It has been suggested that this protein factor may regulate cytokines and reprogram chondrocytes to stop destruction of healthy joint tissue and support the reconstruction of damaged tissue.
• Perna contains a full spectrum of naturally chelated minerals. Silicon, Zinc, Iron, Manganese, and Copper are a few that are found in Perna that are important for the synthesis of collagen and GAGs.
• The minerals in the Perna are naturally chelated, so they are effectively absorbed.
• Perna provides natural Hyaluronic Acid that is the backbone of proteoglycans and is a principle component of synovial fluid.

CONCLUSIONS:
• Perna is a safe and complete approach to connective tissue support.
• The whole Perna mussel naturally contains factors that are essential to normal health and function as well as healing of joints. Those factors include Hyaluronic Acid, Chondroitin Sulfate, Zinc, Manganese, Iron, Silicon, Copper, and a full range of amino acids.5

Some companies use studies on another mollusk, Viviparus ater, and apply them to Perna canaliculus.

HERE ARE THE FACTS:
• Perna canaliculus has been evaluated for its benefits for joint health. Viviparus ater has not.
• Viviparus ater and Perna canaliculus are two quite different mussels grown in different parts of the world and one cannot assume they are identical in content in regard to Chondroitin Sulfate or any other factor.
• Viviparus ater is found off the coast of Italy whereas Perna canaliculus is found off the coast of New Zealand.
• Perna has been shown to contain approximately 60-80 mg of Chondroitin Sulfate per gram of freeze-dried material as compared to less than 1 mg per gram of Viviparus mussel.
• Companies who make comparisons between these two very dissimilar mussel species confuse the marketplace.

CONCLUSION:
• It is unscientific to compare different mussel species (Perna canaliculus versus Viviparus ater) and assume they are the same. There are studies that show that there is a major difference in content, including Chondroitin Sulfate levels. No studies have been reported on Viviparus ater and its effects on joint health, but there have been multiple studies done with Perna.
**Some brands claim that we use a Perna extract.**

**HERE ARE THE FACTS:**
- The *Perna canaliculus* in our Glyco-Flex® is not an extract. The Perna mussel is freeze-dried whole to ensure that the ingredients are present and undamaged.
- The Perna in our Glyco-Flex® products provides naturally chelated minerals, amino acids, naturally occurring Chondroitin Sulfate, glycosaminoglycans, and naturally bioavailable ingredients to provide natural healing for the joint.
- The Perna approach to joint health is a natural and complete approach that addresses the needs of the whole joint, providing everything it needs to heal and not just isolated factors.²,⁶,⁷,⁸
- Perna contains proteins, complex carbohydrates, lipids, naturally chelated minerals, enzymes, nucleic acids, and Chondroitin Sulfate that can provide support to the body and especially the joints.

**CONCLUSIONS:**
- Perna mussel naturally contains:
  - Amino acids to support the growth and development of all body tissues. Branched-chain amino acids to provide energy directly to muscle tissue.
  - Naturally chelated minerals to support the production of collagen, GAGs, proteoglycans, antioxidants, and enzyme activity.
  - Omega 3, 6, and 9 fatty acids to support joint health, immune system function, and to regulate inflammatory processes.
  - Protein factors that regulate the immune response and neutralize the effects of destructive enzymes.
  - Chondroitin Sulfate to increase comfort and support joint lubrication, and elasticity.
  - Hyaluronic Acid to support the production of proteoglycans and thicken synovial fluid.

**Some brands say Perna is unsafe.**

**HERE ARE THE FACTS:**
- Glyco-Flex® Safety
  - Glyco-Flex® products were evaluated in dogs and were found to be completely safe.⁴
- Perna Safety
  - As a product of marine aquaculture, the Perna in Glyco-Flex® products from Vetri-Science® is grown commercially in the pure, pristine waters off the coast of New Zealand.
  - The mussels are grown on ropes suspended from platforms on the surface. (They are not bottom feeders.)
  - The mussel is grown under strict quality control conditions that permit optimum harvesting and purity.
  - Each batch of raw materials must pass strict quality control guidelines of the New Zealand Ministry of Fisheries before it can be released for export.
  - Each batch is checked for potential bacterial contamination and heavy metals.

**CONCLUSIONS:**
- Perna is a safe, effective, and complete approach to joint health.
- Perna is not a bottom feeder, it is tested to be free of contaminants and is freeze-dried whole (not an extract) to provide a completely safe and natural alternative.
- Safety studies done in Texas on Glyco-Flex® products show they are safe for use as recommended.⁴

**Some brands claim to be the only ones that meet their label claims.**

**HERE ARE THE FACTS:**
- Vetri-Science® provides complete and accurate Certificates of Analysis upon request.
- Vetri-Science® follows Good Manufacturing Procedures (GMP). 
- As part of our GMP program, each lot of product is carefully examined to guarantee that it meets our product specifications.
- Our products are continually being monitored for quality and adherence to our label claims.
- We guarantee all of our products for:
  - Purity and Potency
  - Integrity of Formulation
  - Adherence to Label Claims
- To confirm potency and maintain high integrity, Vetri-Science® uses only FDA approved outside testing facilities for product analysis.
CONCLUSION:
• We guarantee our products will meet our label claims. We will send out free product to any Veterinarian wishing to test at an independent laboratory.

Some brands use misleading information to compare pricing, dosage, and ingredients of their products to Glyco-Flex®.

HERE ARE THE FACTS:
• In order to make themselves look better, other companies have compared our original Glyco-Flex® to their most advanced joint formula, and while we are flattered that they feel their advanced formula can’t compare to ours; we do feel that it is misleading to hand out such literature to consumers.
• Other companies have made comparison charts that compare our loading to their maintenance use to make it appear a better financial investment to use their product.
• Other companies have made comparison charts that make it look like we are trying to carry an isolated and stripped Chondroitin Sulfate product. Perna is complete and cannot be separated into categories in the same way stripped Glucosamine/Chondroitin Sulfate products can.

CONCLUSIONS:
• Vetri-Science® has a Glyco-Flex® product for every stage of your dog’s life. The fact that companies compare our original formula to their most advanced formula shows how complete our original Glyco-Flex® formula is.
• Glyco-Flex® products are more affordable than competitors when looking at content and the level of ingredients. It is also only logical to compare loading directions to loading directions and maintenance usage to maintenance usage.

Contact us to receive your free Technical Bulletin written by our Ph.D. Biochemist. It includes a full list of references and studies on all of the ingredients in Glyco-Flex®. We also provide free Client Brochures for your clients and customers. An abstract of our safety study is also available upon request.

X Glyco-Flex® is the Original Perna Joint formula.

X Vetri-Science® products have been sold exclusively to Veterinarians for over 22 years.

X The Glyco-Flex® line includes formulations to support every stage of your patient’s life.

X Glyco-Flex® products provide a full spectrum of factors and ingredients that support joint health. They go beyond the isolated Chondroitin Sulfate and Glucosamine products.

Glyco-Flex® products are the most comprehensive joint formulas available!

REFERENCES

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