

How Does the Glycomarine™ Mussel Extract Work ?

Because there has been so much excellent research work done on the mussel extract it is possible to explain why it has such beneficial properties for the treatment of arthritis. There are three contributory factors in the extract which combine to make it a powerful, yet safe treatment. A fourth factor results in the secondary, beneficial effect of enhancing vitality and endurance.

The main anti-inflammatory component in the extract is a glycogen complex which can be shown, by the standard pharmacological techniques used in the assessment of medicinal products, to have a significant effect in suppressing inflammation. There are several ways in which an inflammatory condition can be controlled. It seems that the extract works on at least two of these as is now explained. These are very much simplified explanations of what are, in fact, complex biochemical processes, which take place in our bodies.

In our blood we have cells which are called neutrophils which are some of the soldiers in our defence system. These neutrophils are constantly circulating in the blood stream with some attaching to the blood vessel walls and then releasing again so that, at any one time, there may be 50 percent of the neutrophils sticking to the blood vessel walls and the other 50 percent circulating. If an inflammatory stimulus occurs (as is the case in many types of arthritis) there is a change in the nature of the blood vessel walls which allows some of those neutrophils which are attached to the walls to escape through the walls and attack the site of the inflammatory stimulus thus causing inflammation, swelling and pain.

What some drug products, and also the mussel extract can do, is to prevent the neutrophils escaping and attacking the inflammatory stimulus. This is achieved by either blocking the activation signal, which tells the neutrophils to attack, or by blocking the activation sites so that the neutrophils cannot attach.

Another way in which the mussel extract acts as an anti-inflammatory agent is involved with some substances called prostaglandins. Prostaglandins are a group of hormones, naturally present in the body, which are responsible for regulating many of the body's functions.

In some of the functions the pathways can result in inflammatory processes and involve the conversion of arachidonic acid to prostaglandins and leukotrienes. There are several steps in these conversion pathways and the blocking of just one of these steps is sufficient to prevent the formation of the undesirable compounds.

McFarlane's Glycomarine™ Mussel Extract contains certain fatty acids (usually grouped together under the name Omega 3 fatty acids) which have the ability to inhibit the reactions necessary to convert arachidonic acid to prostaglandins and leukotrienes. In particular, one of the fatty acids present in the extract, eicosatetranoic acid has been shown to have quite a potent inhibitory action.

The two anti-inflammatory activities just described make the product a very valuable, perfectly natural, treatment for the types of arthritis which have an inflammatory component. Most forms of arthritis do involve an inflammatory component. Even osteo arthritis, which is not an inflammatory condition, can have associated inflammation which is caused by the degradation of the bone surfaces causing aggravation when moved.

The Glycomarine™ Mussel Extract contains, as part of its natural composition, some substances called mucopolysaccharides (also known as glycosaminoglycans) and these substances are influential in the production and repair of cartilage, synovial fluids, tendons and skin. Recently there has been a great deal of publicity for two groups of compounds, the Chondroitin Sulphates and the Glucosamines indicating the benefit that these can give in the treatment of arthritic disorders. We can be pleased therefore to discover that these compounds form part of the mucopolysaccharide content naturally present in the mussel extract. Glucosamines are sugar molecules which, when a number of them are coupled together in the form of a chain, make mucopolysaccharide molecules such as Chondroitin Sulphate. If the mucopolysaccharide molecules are then coupled with protein molecules a new molecule called a proteoglycan is formed. The proteoglycans are important space filling molecules in what is known as the extracellular matrix. Simply expressed this means that they fill up gaps in the body's structure such as the spaces around joint cavities. By doing this they act as shock absorbers as well as lubricants for joint surfaces. They are able to achieve this because of the very strong attraction of proteoglycan molecules for water.

Thus, in the one natural product we have three very effective treatments for the various forms of arthritis.

To Summarise:

- * The Glycomarine™ Mussel Extract contains a glycogen complex molecule, which has significant anti-inflammatory activity. It is able to suppress inflammation by blocking neutrophil emigration.
- * The Glycomarine™ Mussel Extract contains Omega 3 fatty acids, in particular eicosatetraenoic acid. It is able to suppress inflammation by blocking the synthesis of prostaglandins and leucotrienes from endogenous arachidonic acid.
- * The Glycomarine™ Mussel Extract contains mucopolysaccharides, which are able to relieve arthritic symptoms by enhancing joint lubrication, boosting shock resistance and rebuilding cartilage.

It was mentioned earlier that there is a secondary, or beneficial side effect, experienced when the mussel extract is used. This effect is the enhancement of vitality and endurance. Whilst there is no conclusive evidence for the mechanism causing this effect, it is possible to suggest a possible reason for it.

The mussel extract contains a naturally present enzyme called steroid sulphatase, and this enzyme is able to break the bond which holds sulphate molecules to other molecules. In our body we have a substance called cortisol sulphate which, if the sulphate molecule is taken away by the bond being broken, provides a source of free cortisol. This cortisol can then stimulate the adrenal gland to release adrenaline. The natural release of adrenaline will create a feeling of well being, desire to be active and the ability to be so.

There is absolutely no doubt that this effect occurs as it is so often described by people for their own or their animal's experience. Whether it occurs by the suggested mechanism above or by some other mechanism is not so important. The main thing is that it happens!