

**Is Collagen Type II A Cure For Arthritis And Heart Disease?**

By Dr. Alex Duarte, O.D., Ph.D. \*

**Collagen Type II and Arthritis**

According to the latest statistics, 50 million Americans suffer from some form of arthritis, either rheumatoid or osteoarthritis, as well as a variety of other arthritic conditions. All forms of arthritis share the common symptoms of severe pain, loss of range of motion, and a diminished quality of life. Add to this the fact that the number one killer in our country today is still cardiovascular disease, and you have all of the conditions necessary for a plethora of pharmaceutical and natural medicines designed to reduce the severity of these diseases. Could it be that one nutritional medicine called collagen type II can ameliorate both disorders in an effective way? Safety also becomes an issue. Currently modern medicines, such as nonsteroidal anti-inflammatories (NSAIDS), can cause occult bleeding, ulcers and even life threatening side effects. Other approaches include natural medicines such as fish liver oil, DI phenyalanine and shark cartilage. It may turn out that the natural components of cartilage hold the greatest promise of ameliorating both arthritis and heart disease.

I became interested in collagen type II as a treatment for arthritis and heart disease while researching cartilage and writing my book, “Jaws for Life, the Story of Shark Cartilage.” In my research, I discovered the medicinally effective ingredient in cartilage is really due to the collagen type II fraction. We know that cartilage is composed of four or five different kinds of collagen. There are 14 different kinds of collagen altogether, but the primary collagen, the most predominant one, the most medicinal collagen, is collagen type II. If collagen type II is derived from chicken sternal cartilage, from chicks six to eight weeks old, it contains the greatest number of anti-inflammatory and joint supporting proteoglycans. These proteoglycans include glucosamine sulfate which has over 30 years of double-blind, placebo-controlled studies indicating that it actually helps to rebuild the cartilage in arthritis joints. We also know that it contains a high concentration of chondroitin sulfate A, which is a powerful anti-inflammatory and also supports the joint tissue. Once again, if the product is derived from chicken sternal cartilage, these two components are in highest concentration compared to any other cartilage source. In addition to these, collagen type II also contains a powerful, newly discovered antioxidant proteoglycan called cartilage matrix glycoprotein (CMGP), which can help reduce the oxidative damage to the joint. In addition to these new discoveries, there are other ingredients in collagen type II that make it more effective than just taking glucosamine or chondroitin by themselves.

Another advantage of collagen type II over cartilage is that it is much more absorbable, Researchers have recently demonstrated about eight percent absorption of ground cartilage, whereas the components of collagen type II have a much higher absorption rate of 70 to 90 percent. This means considerably less collagen type II has to be taken in comparison to cartilage. Most people have to take 9 to 12 grams of cartilage in order to get a response, whereas with collagen type II as little as two grams, and more commonly three to four grams, are quite sufficient.

When people suffer from arthritis, there is a selective destruction of collagen type II in the joint cartilage itself. Scientists know that this particular component of cartilage is being attacked by white blood cells and somehow this activates the immune system in the rheumatoid arthritic patient to develop antibodies to collagen type II. This then sets up an immune response to all of the cartilage that is degenerating in the body. Thus, both wrists hurt, both knees hurt, the hips, the back, etc. In osteoarthritis, we have a wear and tear type of destruction of the cartilage with the release of soluble collagen type II, but without the immune response. The end result is the same. Pain, more pain, and loss of quality of life. The question now becomes how does collagen type II turn off the immune system in the rheumatoid arthritic. The answer is that collagen type II’s effectiveness is accomplished through “oral tolerance.” A few years ago, Dr. Howard Weiner from Brigham and Women’s Hospital, discovered that there is a part of the intestine called the GALT (gut-activated lymphoid tissue), which is part of our immune system. Basically, white blood cells in the GALT allow us to eat a variety of different kinds of proteins without developing an allergy or sensitivity to them. The system of oral tolerance was actually discovered many years ago by German scientists who fed poison ivy to severely allergic patients and effectively eliminated their allergy to poison ivy. It goes back to the homeopathic principle of “like cures like.”

Dr. Weiner started feeding cow myelin to multiple sclerosis patients and produced improvement in their symptoms. Dr. David Trentham, out of Harvard University, later teamed up with Dr. Weiner to investigate the side effects of chicken sternal collagen type II being fed to arthritic rats. What they found was quite remarkable. By the second or third months the rats no longer displayed any symptoms of arthritis. There was a profound amelioration of the disease.

The next step was to test oral tolerance of collagen type II on human arthritic patients. Drs. Trentham and Weiner studied ten people with severe rheumatoid arthritis. They eliminated the standard therapies such as NSAIDS and methotrexate and fed the patients pure collagen type II derived from chicken sternal cartilage. At the end of the second month, six of the ten patients showed substantial improvement and one showed a complete regression of the disease that lasted 26 months with no side effects. The clinical response in this study was defined as a 50 percent or greater reduction in swelling and tenderness, a 50 percent improvement in morning stiffness, as well as an improved 15 minute walk time and grip strength. Thus, there were several objective and subjective criteria for measuring success. These results are profound. As a matter of fact, this study demonstrated a 70 percent response rate of the most severe cases of rheumatoid arthritis with no side effect, with these patients completely removed from standard medications. Even the other 30 percent of the group had improvement. And on the basis of this trial, the same doctors conducted a phase II trial on 59 patients with, again, severe active rheumatoid arthritis. Twenty-eight received the collagen type II, while 31 received a placebo pill. What is interesting is that those who were off all drugs and taking collagen type II showed very significant stabilization and improvement, while those on placebos continued to deteriorate. In fact, four collagen type II patients showed a complete resolution of the disease, while no patients in the placebo group displayed any remission. Again, no side effects were detected. We see that oral ingestion of collagen type II may well prove to be the most effective natural means of arthritis management regardless of the form of the disease.

The question becomes, now, how exactly is collagen type II working to produce these incredible results. It appears the mechanism of action is immune suppression through white blood cells located in the GALT. These white cells devour some of the collagen type II and then instruct the rest of the immune system to stop attacking collagen type II, as these white cells identify it as friend and not foe. Once the immune system is alerted to stop attacking the collagen type II, there seems to be a proliferation of T-suppressor cells. These are also known as T8 cells. Ultimately, this decreases the number of inflammatory cytokines that are partly responsible for the inflammatory reaction in rheumatoid arthritis. Part of the other reason, and this is precisely why it works in osteoarthritis, is that collagen type II has such a high concentration of glucosamine and chondroitin, which 30 years of double-blind, placebo-controlled studies demonstrate a strengthening of the cartilage, as well as an increase in new cartilage cell production. These ingredients also have anti-inflammatory properties and insure maximum water concentration in the cartilage itself, which acts as a cushion during normal physical activity.

Collagen type II also contains proteoglycans that inhibit blood vessel formation in joints and reduce enzyme attacks on the cartilage itself. Thus, there is a rejuvenation of the cartilage producing cells and a decrease in the destructive biochemistry of the joint. Additionally, many of these proteoglycans found in collagen type II support the lubricating fluid of the joint called the synovial fluid. These proteoglycans increase the thickness and lubricating effectiveness of this fluid.

It is extremely important to understand that not all types of collagen are the same, and not all types of cartilage can give you a medicinally effective collagen type II. Collagen type II must be derived from chicken sternal cartilage, only. The reason is very simple. This source of cartilage holds the greatest concentration of joint-saving proteoglycans. When a person who has arthritis begins to take collagen type II, they should wait of a period of four to eight weeks before they make a decision as to whether or not the product is working. It takes this length of time in most people to get significant results. I have seen some individuals eliminate pain within one week, but this is the exception, not the rule. Collagen type II is available in 500 mg. capsules. It should be taken in divided doses throughout the day – 20 minutes before eating, preferably with a small amount of orange juice as this improves absorption. In lieu of the fact that there are no side effects with collagen type II, this would seem to be the product of choice when suffering from any form of arthritic condition.

**Consider the following letter received from Mrs.Z.E. from Tucson, Arizona**: “I’ve been using collagen type II for two and a half months and have noticed a significant improvement in the chronic joint pain I had been experiencing. I have suffered from the pain of arthritic immobility of one of my fingers for several years. The bonus is the complete remission of pain in the other joints as well. I am confident that this product has been dramatically instrumental in the improvement of my condition, and I know it will continue to be a part of my daily routine. Because I have always been very resistant to taking pain killers, collagen type II has been nothing short of a blessing.” (Testimonial on file, Mrs. Z.E., Tucson, AZ.)

In review, we now know that collagen II components are truly chondro-protective agents because they:

1) resist protein cartilage digesting enzymes;

2) reprogram destructive chondrocytes and cytokines, reducing inflammation;

8) promote new cartilage cell synthesis and proteoglycan synthesis;

4) enhance the production of the joint fluid, hyaluronan, to produce a thick effective, lubricating, synovial fluid for the joint itself;

5) protect the surface of the cartilage from oxidative damage and enzyme digestion;

6) act as a powerful anti-inflammatory and pain modulator.

**Collagen Type II and Heart Disease**

Medicines such as aspirin and NSAIDS, as well as natural therapeutics such as fish liver oil or antiarthritic herbs, cannot compete with the overall biochemical power of collagen type II. It may turn out also that collagen type II is one of the most cardio-protective agents ever discovered. From a recent analysis, I’ve found that collagen type II is 14.2 percent chondroitin sulfate A. Chondroitin sulfate A is a natural proteoglycan that is found in the lining of our arteries, our nasal septa, and even the cornea of our eye, as well as in the collagen tissue throughout the body. Chondroitin sulfate A (CSA) has a powerful antithrombogenic or anticoagulant affect, which, in essence, prevents blood clots and has been shown to reduce the incidence of stroke. In Japan, CSA is used by more than 20,000 people every day and in the 20-year history of its use, no cases of toxicity have been reported.

CSA was tested for over 25 years by Dr. Lester M. Morrison. In 1968, Dr. Morrison formed a group of 120 patients with coronary artery disease. The patients were divided into two groups, 60 receiving CSA therapy, and 60 serving as controls. Both groups took their standard medications, or their fat-restricted diets, based on their regular doctors’ advice. Dr. Morrison, as well as other researchers, had discovered earlier that CSA literally reduced the cholesterol and other lipids in the blood and actually “cleared” cholesterol from the lining of arteries, including the aorta. After three years into the double-blind study, the 60 human subjects receiving CSA experienced four coronary incidents, including three fatal heart attacks. The control group, the group that did not receive the CSA, but rather just their standard heart medication, had 29 coronary incidents, including six fatal heart attacks and ten nonfatal attacks. After four years, the control group had 36 heart attacks, while the CSA group had only six. Five years into the study, the control group experienced 38 heart attacks, while the CSA group only six. After six years, there were 42 heart attacks in the control group and only six in the CSA group, and the death ration of the CSA group compared to the control group was 4:14. This indicates a 600 percent reduction in the incidence of fatal heart attacks simply by taking oral CSA on a daily basis, regardless of what other type of therapy is employed.

Each year we have 500,000 deaths from acute coronary incidents and an equal number of surviving cases of acute coronary thrombosis. Imagine reducing this number by a factor of 600 percent, all because of the natural substance found in collagen type II. Medical science has led us to some amazing breakthroughs, in high tech treatments for diseases. Because cardiovascular disease is the number one killer in the United States today, it seems that much of the research and development has been focused in the area. Although things such as artificial hearts, balloon angioplasty, valve replacement and by-pass surgery are lifesaving procedures that have added years to the lives of many, they are not procedures that most people would like to have done. This is because they are costly, painful and risky. They don’t address the cause of the disease. Yet CSA seems to be more effective over the long haul and addresses the cause and not just the symptoms. Unfortunately, many people suffering from heart problems view these procedures as the only options. I say now that here is another option — CSA-rich collagen type II.

Collagen type II has also found some support in the research for the amelioration of autoimmune disease caused by breast implant poisoning, as well as amelioration of Menier’s disease and progressive myopia. It has also been touted to help in weight loss. However, I make none of these claims and although future research may demonstrate that it is effective in these areas, alleviating arthritis and heart disease is sufficient enough. It is exciting to see researchers at the forefront of medicine now using natural products to demonstrate that nature indeed has a cure.

**\* About the Author:**

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