

Hyaluronan combats osteoarthritis disease according to new evidence

January 25th, 2005—Results from a recent study on serum hyaluronan reinforce the already strong connection between the body's production of hyaluronan and the healthy function of cartilage and other tissues throughout the body.¹ The recent study, published in the January issue of *Arthritis and Rheumatism*, provides further evidence that the body produces elevated serum hyaluronan levels in an effort to combat osteoarthritis disease.

Hyaluronan is produced by the body as a result of a "biological feedback mechanism." The normal response of the body, as a result of this biological feedback mechanism, is to produce elevated levels of hyaluronan to help repair damage caused by osteoarthritis disease. The findings of this recent study are consistent with numerous other studies that demonstrate the healing properties of hyaluronan²⁻⁶ and collagen.^{7,8}

A Closer Look at Biological Feedback Mechanisms

The body employs numerous mechanisms to maintain the healthy homeostasis (balance) of physiological functions. For example, the number of white blood cells increases as a natural response to combating diseases, such as cancer.⁹⁻¹¹ With this biological feedback mechanism, the presence of a disease such as cancer causes a desirable response by the immune system, in which the body produces more white blood cells needed to fight the cancer. For this reason, doctors can use the elevated white blood cell count as a "biomarker" of disease.¹²⁻¹⁴ In this case, the increased white blood cell count—or biomarker as it is called—is an indicator of disease, not a causative agent of the disease.

Likewise, the results published in *Arthritis and Rheumatism* suggest that elevated serum hyaluronan levels might help doctors diagnose osteoarthritis disease. It is of paramount importance to understand that this study does not indicate that hyaluronan is a causative agent of the disease. To the contrary, the use of hyaluronan to treat osteoarthritis disease is supported by numerous clinical studies.¹⁵⁻²²

Importance of Hyaluronan to Healthy Joint and Cartilage Function

Hyaluronan is a crucial component of synovium and cartilage and is considered to play a key role in the lubricating mechanisms of synovial fluid.²³ One only needs to look at the body's natural response to disease to underscore the importance of hyaluronan to maintaining healthy cartilage. When patients with osteoarthritis and other cartilage diseases experience inflamed synovium, local production of hyaluronan is increased. This natural response is known as a "biological feedback mechanism." The results of the recently published study in *Arthritis and Rheumatism*, demonstrate that serum hyaluronan levels might be used as a biomarker, because of this important biological feedback mechanism.

Increased Serum Hyaluronan Levels May Help Doctors Diagnose Osteoarthritis Disease

The potential to use serum hyaluronan levels as a biomarker for evaluating osteoarthritis disease burden relies on the body's natural response to the disruption of cartilage caused by disease. It is thought that the body produces elevated levels of hyaluronan as part of a biological feedback mechanism in which the body produces hyaluronan to compensate for the loss of hyaluronan and other components, such as collagen, caused by osteoarthritis disease.

Like the earlier example of a biological feedback mechanism—in which the white blood cell level is used as a biomarker, but is not a causative agent of disease—hyaluronan production is likewise, not a causative agent of osteoarthritis disease. To the contrary, the body produces hyaluronan in an effort to overcome the damage caused by osteoarthritis disease.

Hyaluronan Is Vital to Joint Health

As mentioned above, hyaluronan is not a cause of osteoarthritis disease. In fact, the importance of hyaluronan in the proper function of cartilage and joint health, skin health, and wound healing, has been demonstrated through hundreds of scientific studies, spanning 40 years of investigation. Moreover, the use of hyaluronan injections to treat osteoarthritis disease has had FDA approval since 1998. This follows clinical trials, dating back to 1986, that demonstrate the safety and efficacy of using hyaluronan injections to help restore the cushioning effect and lubrication of normal, healthy synovial fluid.²⁴⁻²⁹

BioCell stands with confidence behind the safety and efficacy of BioCell Collagen II™. BioCell Collagen II™ has been on the market since 1997 and has been effectively used by thousands of customers since then. In addition, the safety of BioCell Collagen II™ was investigated in two toxicology studies and was shown to be very safe with no adverse effects.

Questions for the Future

The news that serum hyaluronan levels may potentially be used as a biomarker for evaluating osteoarthritis disease burden is an exciting development, and further establishes the connection between hyaluronan and proper joint function. At present, the study results must be viewed as preliminary in nature, and will necessarily warrant further evaluation. BioCell will continue to monitor these developments and provide all relevant information about the use of serum hyaluronan as a biomarker as this story unfolds. In addition, be assured that BioCell will provide continuous updates regarding the safe use of BioCell Collagen II™.