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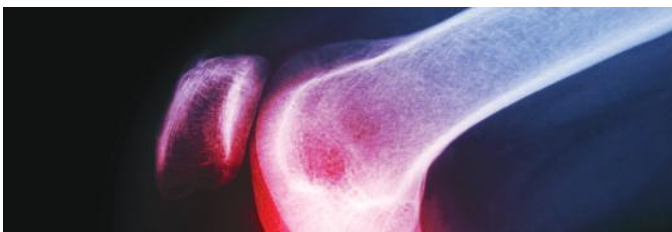
Carticol[®]

Undenatured Type II Collagen

The ageing world population has led to an increase in joint problems due to arthritis. In the United States, 43 million (16.6%) are affected by arthritis. Osteoarthritis and rheumatoid arthritis are the two most common types, with osteoarthritis affecting close to 21 million Americans.

Commonly used medical treatments such as acetaminophen and Non-Steroidal Anti-Inflammatory Drugs (NSAID) help alleviate pain associated with the disease but are unable to reverse its effects. There are also substantial side effects related to their use.

Due to the risk of these side effects, many people have turned to nutraceuticals. The most popular nutraceutical remedies for arthritis are glucosamine and chondroitin. Recent human trials have shown these supplements to have a minor effect on symptoms. However, Oral consumption of undenatured type II collagen (UC-II) has shown to be significantly more effective in treatment of osteoarthritis and rheumatoid compared to common nutraceutical remedies.



Carticol[®] effects on healthy individuals

In addition to studies on individuals that suffer from osteoarthritis and rheumatoid arthritis, studies on healthy individuals have also shown benefits when individuals were subjected to strenuous exercise. Individuals treated with UC-II reported significant improvements in knee joint function compared to individuals given a placebo. It also took UC-II treated individuals longer to experience joint pain after 120 days of supplementation.



Carticol[®] is extracted from chicken sternum material sourced from Dutch EU-registered slaughter houses. Carticol[®] contains approximately 40% undenatured type II collagen that is hydrolyzed during digestion into functional peptides.

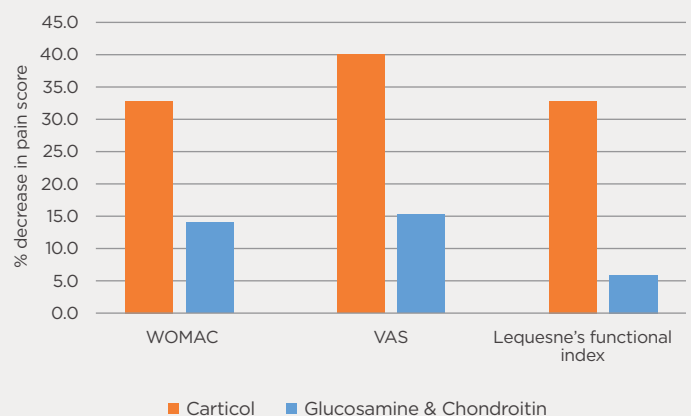
Carticol[®] vs Glucosamine & Chondroitin

After 90 days, WOMAC scores decreased by 33% for UC-II treated patients versus 14% for Glucosamine & Chondroitin treated groups.

Similarly, VAS scores decrease by 40% in UC-II treated groups compared to 15.4% for Glucosamine & Chondroitin treated groups.

Using the Lequesne's functional index, UC-II treated patients reported 20.1% decrease in score versus 5.9% in Glucosamine & Chondroitin treated groups.

WOMAC (Western Ontario & McMaster universities Osteoarthritis index), VAS (Visual analog scale) and Lequesne's index are commonly used questionnaires that evaluate the discomfort a patient experiences when performing certain everyday tasks.

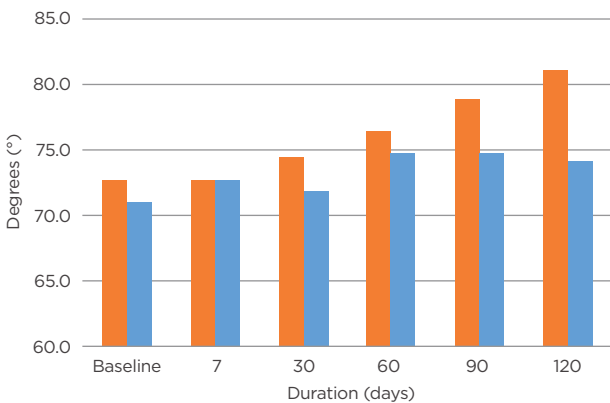


How Carticol® works

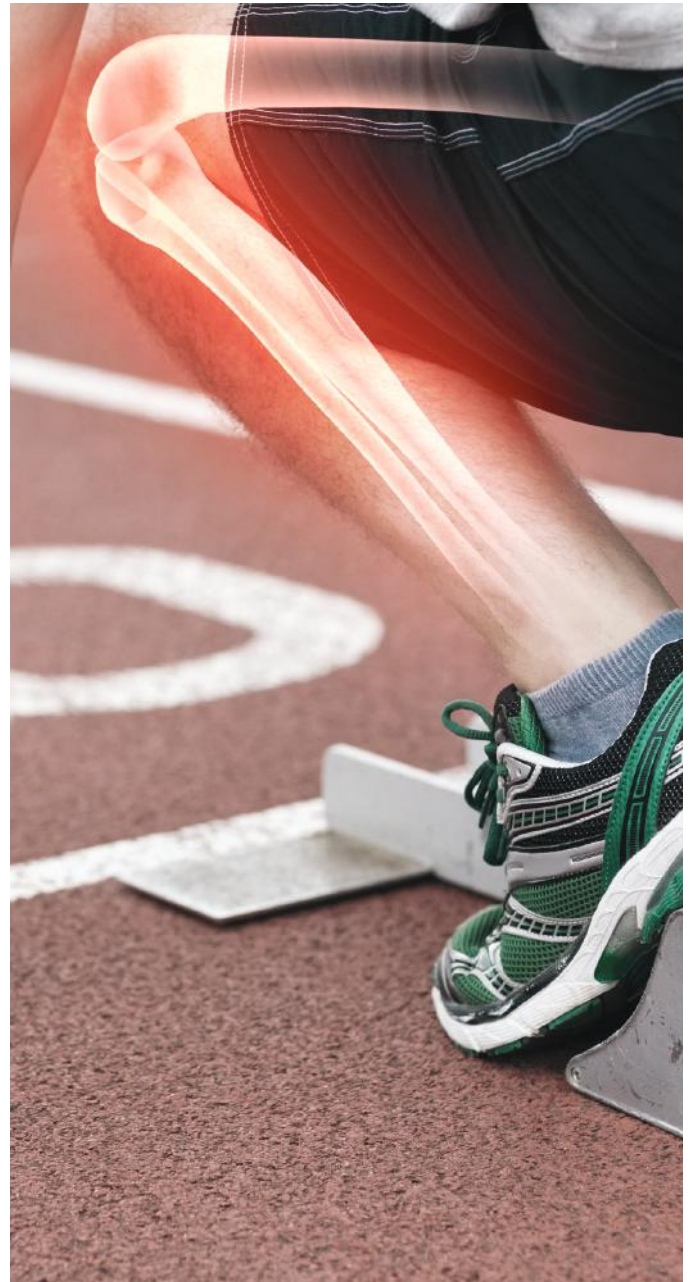
Protection of the joints occurs by the migration of T cell regulators to the inflamed and damaged area. These T cell regulators create anti-inflammatory cytokines that stimulate chondrocytes to produce and maintain the cartilage matrix. By consuming microgram quantities of UC-II it is found that inflammatory cytokines levels in the blood are drastically decreased. This mechanism is known as 'oral tolerance' whereby ingestion of food or an antigen can alter immune responses. Oral tolerance is a physiological process designed to protect the body from immunological damage. Due to the nature of the mechanism, it is essential that UC-II is consumed continuously in order to maintain tolerance. Studies have shown that patients begin to have a relapse of pain after a withdrawal period of 30 days.

How to use Carticol®

Carticol® works as an immune modulating agent at a low dose rate of 30mg/day, taken orally.



The graph above shows the average knee extension in healthy subjects. The effect of undenatured collagen type II is clinically studied in healthy, active adults. The orange bars represent subjects treated with undenatured collagen type II, the grey bars represents subjects receiving placebo.



References

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Undenatured type II collagen for joint support: randomized, double-blind, placebo-controlled study in healthy volunteers. Lugo JP, Saiyed ZM, Lau FC, Molina JP, Pakdaman MN, Shamie AN, Undani JK. *Int Soc Sports Nutr.* 2013 10:48 1-12.

Efficacy and tolerability of an undenatured type II collagen supplement in modulating knee osteoarthritis symptoms: a multicenter randomized, double-blind, placebo-controlled study. James P, Lugo, Zainulabedin M. Saiyed and Nancy E. Lane. *Nutrition Journal* 2016 15:14.

For more Information and samples please contact info@sociusingredients.com

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