Reversal of Inflammation with *Perna canaliculus* in a Collagen-Induced Inflammatory Mouse Model.

Objective: The purpose of this study was to look at the ability of *Perna canaliculus* to reverse swelling and inflammation in a collagen-induced inflammatory mouse model.

Summary: Collagen-induced arthritis (CIA) is a well-accepted animal model to evaluate the potential of substances like *Perna canaliculus* (green-lipped mussel) to reverse and reduce inflammation, swelling and pain. In this study, Perna was shown to be statistically significant in reversing inflammation in CIA Perna treated mice as compared to the control mice.

Background: In this model, collagen II injections are used to create inflammation, redness, swelling, and pain to evaluate the effectiveness of specific agents in controlling and reversing these symptoms. The freeze dried Perna used was produced from the entire mussel (minus the shell) and contains a wide spectrum of potentially active constituents.

Methods: Twenty-four female DBA/IT mice were obtained from the Jackson Laboratory (Bar Harbor, ME) and following induction of CIA, the mice were randomly assigned to the Perna treatment group or the control group. The Perna group was fed rodent chow/Perna mix (1:1 ratio) and the controls were given only rodent chow over a 107 day period. Animals were examined daily for footpad erythema, inflammation and joint swelling. Mouse inflammation/arthritis was graded on a 4 point scale of 0 to 3 (0 = no pathology, 1 = swelling in one limb, 2 = moderate swelling in multiple limbs with joint locking, and 3 = pronounced swelling in all 4 limbs with joint locking). After 10 days, the mice in the control group and Perna group both had the same average severity score of "2" for joint swelling and inflammation. The study was carried out under the supervision of the Clemson University Institutional Animal Research Committee.

Results: The experiment ran for 107 days and at the end of the study, 61% of control mice had a severe joint score of "3" with several mice exhibiting multiple locked and inflamed joints. In contrast, only 20% of the mice in the Perna group ended the study with a rating of "3". The total average score of the control mice was "2.63" while the total average score of the Perna group was "1.42" showing that the Perna mice got progressively better with significantly less inflammation and swelling as compared to the control mice which got worse. In the Perna treated group one mouse had a complete reversal of inflammation and eight others showed only mild limb swelling.

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Group	*Incidence of Inflammation after 107 days (%)*
Control	61%
Perna	20%

Conclusion: At the beginning of the study all mice had the same degree of inflammation. The Perna treated mice showed significant reversal of inflammation and swelling at the end of the study. This reversal of swelling and inflammation may be due to the benefits of multiple components within the Perna.

Clinical Relevence: This study, along with other data, was submitted for publication in 2007 to substantiate the use of Perna for preventing inflammation and supporting overall joint function.

Lawson B, et al. Reversal of inflammation with Perna canaliculus in a collagen-induced inflammatory mouse model. Clemson University, 1996. Published in BMC Complimentary and Alternative Medicine, 2007, 7:20.