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07/07/2017

John Weeks  
Editor in Chief,  
The Journal of Alternative and Complementary Medicine  
Seattle, WA

**Re: Consumers Report Value of Glucosamine for Rheumatoid Arthritis - letter to the editor - JACM-2017-0150**

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Dear Dr Weeks,

We recently completed a survey designed to explore consumer perceptions of the effectiveness and side-effects of glucosamine. People attending their GP surgery or local pharmacy were invited to voluntarily complete our 20-item questionnaire on their use of this glucosamine (both sulphate and hydrochloride salts). The results elicited confirmatory findings about consumer's perception of its value in multiple areas. However, there was an exciting finding we would like to share.

Five (from 87) participants reported that they had been diagnosed with rheumatoid arthritis. All five reported that they had been taking glucosamine sulfate at the recommended dose of 1500mg per day, and had been taking it for six months or longer. All reported they perceived a decrease in pain ranging from 1–2 points on the pain visual analogue scale, to the extent they chose to continue therapy. They also had improvement in joint function/movement ranging from 1–2 points on a 5-points movement scale.

Looking at the literature, we identified a growing pattern of evidence that may explain this finding. The role of reactive oxygen species (ROS) and the resultant oxidative stress found in the pathogenesis and progression of rheumatoid arthritis is well understood. Glucosamine is reported to possess antioxidant activity<sup>1</sup>. Thus, the findings of this study may be rationalised as follows; the antioxidant properties may be directly responsible for the positive effects reported by rheumatoid arthritis sufferers.

While most studies have investigated the effectiveness of glucosamine in osteoarthritis (a predominantly non-inflammatory condition), few have examined its effectiveness in rheumatoid arthritis. Nakamura et al. (2007)<sup>2</sup> found that glucosamine treatment produced noticeable improvements in symptoms of rheumatoid arthritis patients, but antioxidant status was not measured.

In addition, if it has antioxidant effects, glucosamine may also have a role in the treatment of other diseases associated with oxidative stress. There are reports on antioxidant properties<sup>3,4,5,6</sup>, but we found no reports on any proposed anti-inflammatory actions.

This was an incidental finding in our study in only 5 patients, but we believe that this perceived effectiveness warrants further study to identify if this effect is apparent and to elucidate the mode of action and regimen.

**Conflict of interest:** The authors declare no known conflict of interest

**Funding:** No external funding received for this project

**Words count:** 572 words

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Yours sincerely

