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Glucosamine fails to prevent deterioration of knee cartilage, decrease pain

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A short-term study found that oral glucosamine supplementation is not associated with a lessening of knee cartilage deterioration among individuals with chronic knee pain. Findings published in *Arthritis & Rheumatology*, a journal of the American College of Rheumatology (ACR) journal, indicate that glucosamine does not decrease pain or improve knee bone marrow lesions—more commonly known as bone bruises and thought to be a source of pain in those with osteoarthritis (OA).

According to the ACR 27 million Americans over 25 years of age are diagnosed with OA—the most common form or arthritis and primary cause of disability in the elderly. Patients may seek alternative therapies to treat joint pain and arthritis, with prior research showing glucosamine as the second most commonly-used natural product. In fact, a 2007 Gallup poll reports that 10% of individuals in the U.S. over the age of 18 use glucosamine, with more than $2 billion in global sales of the supplement.

For this double-blind, placebo-controlled trial, Dr. C. Kent Kwoh from the University of Arizona in Tucson and colleagues, enrolled 201 participants with mild to moderate pain in one or both knees. Participants were randomized and treated daily with 1500 mg of a glucosamine hydrochloride in a 16-ounce bottle of diet lemonade or placebo for 24 weeks. Magnetic resonance imaging (MRI) was used to assess cartilage damage.

Trial results show no decrease in cartilage damage in participants in the glucosamine group compared to the placebo group. Researchers report no change in bone marrow lesions in 70% of knees, 18% of knees worsened and 10% improved. The control group had greater improvement in bone marrow lesions compared to treated participants, with neither group displaying a worsening of bone marrow lesions. Glucosamine was not found to decrease urinary excretion of C-telopeptides of type II collagen (CTX-II)—a predictor of cartilage destruction.

The joints on glucosamine (JOG) study is the first to investigate whether the supplement prevents the worsening of cartilage damage or bone marrow lesions. Dr. Kwoh concludes, "Our study found no evidence that drinking a glucosamine supplement reduced knee cartilage damage, relieved pain, or improved function in individuals with chronic knee pain."

More information: "The Joints on Glucosamine (Jog) Study: The Effect of Oral Glucosamine on Joint Structure, A Randomized Trial." C. Kent Kwoh, Frank W. Roemer, Michael J. Hannon, Carolyn E. Moore, John M. Jakicic, Ali Guermazi, Stephanie M. Green, Rhobert W. Evans and Robert Boudreau. *Arthritis & Rheumatology*; Published Online: March 11, 2014 DOI: 10.1002/art.38314

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