Preventative Medicine of Utah

# B3 STUDIES

1) Prousky, Jonathan E. "The use of Niacinamide and Solanaceae (Nightshade) Elimination in the Treatment of Osteoarthritis." JOM 30.1 (2015): 13.
Regarding the 455 patients treated with niacinamide, Kaufman discovered that long term therapy usually increased joint mobility (an increase in the JRI) and decreased subjective complaints of articular pain, stiffness or subjective limitation of joint movement, crepitus, articular discomfort attributed by the patient to changes in weather, articular swelling, and articular deformities. Niacinamide repairs articular cartilage by inducing metabolic changes in articular cartilage cells (i.e., the chondrocytes) thus enhancing the ability of cartilage to repair itself. The mechanism explaining the therapeutic effectiveness of the vitamin was related to the raising of coenzymes NAD and NADP in the synovial fluid and within the cartilage matrix itself. This would provide energy and nucleic acids through non-oxidative processes, which is vital for cartilage repair in the deeper layers of the matrix and might have the net effect of increasing cartilage repair rates. ideal dose should be 250 mg in tablet form, taken anywhere from 3-16 times each day, depending on the severity of OA. 500 mg niacinamide tablets six times each day.

2) http://www.ncbi.nlm.nih.gov/pubmed/8841834
Inflamm Res. 1996 Jul;45(7):330-4.
The effect of niacinamide on osteoarthritis: a pilot study.
Jonas WB1, Rapoza CP, Blair WF.
To evaluate the effect of niacinamide, on selected parameters of osteoarthritis using a double-blind, placebo controlled study design.
METHODS:Seventy two patients with osteoarthritis were randomized for treatment with niacinamide or an identical placebo for 12 weeks. Outcome measures included global arthritis impact and pain, joint range of motion and flexibility, erythrocyte sedimentation rate, complete blood count, liver function tests, cholesterol, uric acid, and fasting blood sugar. Compliance was monitored with a pill record sheet and interview.
RESULTS:Global arthritis impact improved by 29% (95% confidence interval [CI] 6, 46) in subjects on niacinamide and worsened by 10% in placebo subjects ($p = 0.04$). Pain levels did not change but those on niacinamide reduced their anti-inflammatory medications by 13% (95% CI 9, 94; $p = 0.01$). Niacinamide reduced

erythrocyte sedimentation rate by 22% (95% CI 6, 51; $p < 0.005$) and increased joint mobility by 4.5 degrees over controls (8 degrees vs 3.5 degrees; $p = 0.04$). Side effects were mild but higher in the niacinamide group (40% vs 27%, $p = 0.003$).
CONCLUSION:This study indicates that niacinamide may have a role in the treatment of osteoarthritis. Niacinamide improved the global impact of osteoarthritis, improved joint flexibility, reduced inflammation, and allowed for reduction in standard anti-inflammatory medications when compared to placebo. More extensive evaluation of niacinamide in arthritis is warranted.

3) http://www.ncbi.nlm.nih.gov/pubmed/10608273
Med Hypotheses. 1999 Oct;53(4):350-60.
Niacinamide therapy for osteoarthritis--does it inhibit nitric oxide synthase induction by interleukin 1 in chondrocytes?
McCarty MF1, Russell AL.
Fifty years ago, Kaufman reported that high-dose niacinamide was beneficial in osteoarthritis (OA) and rheumatoid arthritis. A recent double-blind study confirms the efficacy of niacinamide in OA. It may be feasible to interpret this finding in the context of evidence that synovium-generated interleukin-1 (IL-1), by inducing nitric oxide (NO) synthase and thereby inhibiting chondrocyte synthesis of aggrecan and type II collagen, is crucial to the pathogenesis of OA. Niacinamide and other inhibitors of ADP-ribosylation have been shown to suppress cytokine-mediated induction of NO synthase in a number of types of cells; it is therefore reasonable to speculate that niacinamide will have a comparable effect in IL-1-exposed chondrocytes, blunting the anti-anabolic impact of IL-1. The chondroprotective antibiotic doxycycline may have a similar mechanism of action. Other nutrients reported to be useful in OA may likewise intervene in the activity or synthesis of IL-1. Supplemental glucosamine can be expected to stimulate synovial synthesis of hyaluronic acid; hyaluronic acid suppresses the anti-catabolic effect of IL-1 in chondrocyte cell cultures, and has documented therapeutic efficacy when injected intra-articularly. S-adenosylmethionine (SAM), another proven therapy for OA, upregulates the proteoglycan synthesis of chondrocytes, perhaps because it functions physiologically as a signal of sulfur availability. IL-1 is likely to decrease SAM levels in chondrocytes; supplemental SAM may compensate for this deficit. Adequate selenium nutrition may down-regulate cytokine signaling, and ample intakes of fish oil can be expected to decrease synovial IL-1 production; these nutrients should receive further evaluation in OA. These considerations suggest that non-toxic nutritional regimens, by intervening at multiple points in the signal transduction pathways that promote the synthesis and mediate the activity of IL-1, may provide a substantially superior alternative to NSAIDs (merely palliative and often dangerously toxic) in the treatment and perhaps prevention of OA.

4) http://www.doctoryourself.com/kaufman.html
NIACINAMIDE AND ARTHRITIS

The authors of a 1996 study on niacinamide and osteoarthritis (Jonas WB, Rapoza CP, Blair WF. The effect of niacinamide in osteoarthritis: a pilot study. Inflammatory Research 45:330–334.) could have omitted the words "pilot study" from their title. Dr. William Kaufman had already published, 47 years earlier, his meticulous case notes for hundreds of patients, along with specific niacinamide dosage information applicable to both osteoarthritis and rheumatoid arthritis. In addition, the doctor added some remarkably prescient observations on the antidepressant-antipsychotic properties of B-3. Dr. Kaufman, whom his widow has described as a conservative physician, was nevertheless the first to prescribe as much as 5,000 mg niacinamide daily, in many divided doses, to improve range of joint motion.

5) Hoffer, A. "Treatment of arthritis by nicotinic acid and nicotinamide." Canadian Medical Association Journal 81.4 (1959): 235.

6) http://www.sciencedirect.com/science/article/pii/0006294469900465
Johnson, Willard J., and Lewis Kanics. "Stimulation of adrenocortical secretion by nicotinic acid and certain of its derivatives and analogues." Biochemical Medicine 2.6 (1969): 438-447.
The effect of nicotinic acid, nicotinamide, and related substances on adrenocortical secretion has been investigated. Nicotinic acid and nicotinamide gave rise to a 2- to 3-fold elevation of plasma corticosterone in the intact rat. This effect was abolished by hypophysectomy. The plasma corticosterone response to nicotinamide injection was greatly delayed as compared with that of nicotinic acid, thus suggesting that the activity of nicotinamide is contingent upon prior conversion to nicotinic acid and possibly other active metabolites. 6-Amino-, 5-methyl-, and 5-fluoro-nicotinamide, nicotinylhydrazide, and isoniazid were also found to be potent stimulators of adrenocortical secretion. Our results indicate that these compounds exert their effect on adrenocortical secretion by a stimulatory effect on the pituitary output of ACTH

7) Saul, Andrew W. "The pioneering work of William Kaufman: Arthritis and ADHD." Journal of orthomolecular medicine 18.1 (2003).

8) https://youtu.be/NR2NTaYo7TQ
you tube video dr jonathon wright
Dr. Jonathan V. Wright ~ Osteoarthritis a Basic Vitamin Treatment
Dr. Wright shares his treatment for osteoarthritis. http://tahomaclinic.com/

9) Gaby, Alan R. "Natural treatments for osteoarthritis." Alternative Medicine Review 4 (1999): 330-341.

10) http://www.vrp.com/single-vitamins/silencing-the-aging-gene-another-look-at-clinical-uses-for-niacinamide.
Silencing the Aging Gene:Another Look at Clinical Uses for Niacinamide By Daniel J.

Bourassa, D.C.

11) Nature's Way Niacinamide 500 mg Capsules, 100 Count
http://amzn.to/29gkHlK

**A User**
I have been taking this product for my cholesterol because my doctor told me to, but the nice side effect that I got with it was that it began to help the pain of arthritis in my thumb, shoulder and hip joints. I am almost pain free now and if I stop using it within three days the pain is back again. My daughter has bad arthritis in her knees and she has noticed the same thing...if she stops using niacinamide the pain returns. We both take 3,000mgs daily. Wonderful stuff Niacinamide.

12) Hoffer, Abram. The Vitamin Cure for Alcoholism: Orthomolecular Treatment of Addictions: Easy read Comfort Edition. ReadHowYouWant. com, 2009.

13) Efficacy of methylsulfonylmethane (MSM) in osteoarthritis pain of the knee: a pilot clinical trial12 Dr L.S. Kim, N.D. (Medical Director)correspondenceemail
, Dr L.J. Axelrod, N.D. (Professor) , Dr P. Howard, M.D. (Medical Director)
, Dr N. Buratovich, N.D. (Chair) , Dr R.F. Waters, Ph.D. (Chair)

**Conclusion**:
MSM (3 g twice a day) improved symptoms of pain and physical function during the short intervention without major adverse events. The benefits and safety of MSM in managing OA and long-term use cannot be confirmed from this pilot trial, but its potential clinical application is examined. Underlying mechanisms of action and need for further investigation of MSM are discussed.

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