

A History of Glucosamine: The Good, the Bad and the Ugly

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Glucosamine has a long history dating back to the 1970s when it was used in veterinary medicine. At the time, it was an injectable only. The molecule was unstable in the sense that it was hydroscopic or would absorb moisture, which precluded it from being used as an oral supplement.

Then, an Italian company, Rottapharm, received a U.S. patent for glucosamine in the early 1990s. The brand is known in the U.S. as Dona. Despite few Americans ever having heard of this glucosamine, 90% of the published peer-reviewed research on glucosamine has, in fact, been done specifically on Dona glucosamine. See www.donausa.com.

Shortly after we introduced glucosamine in 1994, a multitude of glucosamine products hit the market. However, there was one major problem ... the patent! To get around the patent, several other glucosamines were sold, such as glucosamine HCL, glucosamine KCL, N-Acetyl glucosamine, etc.

Confusion

Doctors are confused, patients are confused, the majority of us are confused when it comes to joint health. Why? Almost everything we read about glucosamine is, in fact, marketing material with a whole lot of spin added and very little actual science. It has been nearly 2 decades since then and the good news is that there are several other natural options we have to offer patients.

The Good

1. The fatty acid complex, Esterified, also known as EFAC, received a U.S. patent in late 2009. These new "super oils" have outstanding peer-reviewed research supporting their use for joint health. As an added bonus, these oils are very unique in that they are well absorbed through the skin and, as such, have truly raised the bar for topicals.
2. My experience is that very high levels of fish oils are needed for a clinical effect and the results usually pale in comparison to EFAC. However, I still recommend fish oils for their overall health benefits and because esterified oils are not a source of essential or omega 3 oils.
3. The trick to enzymes when an anti-inflammatory effect is desired, is to use them between meals. Otherwise the enzymes are used to breakdown food.
4. Most hot herbs such as pepper or ginger have some degree of activity. The most popular today are boswellia and curcumin.
5. Results are certainly not consistent, but for some patients reducing or eliminating gluten can be game changing.
6. The more force and stress on a joint, the more damage and ultimately more pain. Many patients have failed and given up on weight loss for various reasons. However, pain can be a big motivator. Just as avoiding back surgery is a great selling point for decompression, avoiding knee or hip replacement is a motivator for weight loss.
7. Laser therapy can also be effective.
8. Acupuncture is another option.

All too often when we think of joint health, we immediately think of glucosamine when, in fact, there are many therapeutic options.

The Bad

The Cochrane Collaboration (www.cochrane.org) is an international, not-for-profit, independent organization that produces and disseminates systematic reviews of health care interventions. Cochrane is one of the most, if not the most, respected organization of its type in the world. According to their 2009 review of glucosamine, which included 25 studies with 4963 patients, only one brand of glucosamine was found more effective than placebo. This was the Dona brand from Rottapharm.

GAIT

If there is one glucosamine trial you need to be familiar with, it is GAIT (Glucosamine Arthritis Intervention Trial). GAIT is the largest and most rigorous investigation of glucosamine that has ever been done. The GAIT trial took place at 16 universities across America, was conducted by the National Institute for Health (NIH) and included 1583 patients.

There were ten treatment groups: five early stage osteoarthritis and five moderate to severe osteoarthritis. The groups were broken down as follows:

- 2 Glucosamine only
- 2 Chondroitin only
- 2 Glucosamine and Chondroitin
- 2 Celebrex
- 2 Placebo

Five of the six glucosamine and/or chondroitin groups failed to show benefit over the placebo for pain relief after six months. Only one of the six, which was one of the two groups receiving both glucosamine and chondroitin appeared to benefit. This group was small with only 72 participants.

The GAIT researchers cautioned not to draw any conclusions from this sixth group because of its small size and also, most importantly, because the results were inconsistent with the results from the other five groups. GAIT participants were given the opportunity to continue for another 18 months in order to see if there were any benefits to the cartilage after two years. If glucosamine and/or chondroitin was beneficial to the cartilage, then the researchers would expect to see a reduction in joint space loss. When the joint spacing was measured, the result was that there was no statistically significant difference between the glucosamine and/or chondroitin groups and placebo. Ironically, the participants receiving both glucosamine and chondroitin had slightly more joint space loss than placebo. It was a minor difference and not statistically significant, but certainly not a benefit!

The Ugly

Many brands offer GAIT results as proof glucosamine works; bizarre, but true. It makes one wonder at what point does advertising research results as positive when the authors report them as negative become an abuse of free speech? Many glucosamine containing products claim they are the best, despite little or, in most cases, no research whatsoever, let alone peer-reviewed research. These brands often add chondroitin, MSM, green lipped muscle, milk protein, egg shell membrane, HA, enzymes, hot herbs, fish oil etc., to create the "ultimate" joint product. Ask your sales rep for the actual product research. Chances are it does not exist. All too often, ads state "contains clinically proven ingredients," which on the surface sounds good. However, this usually means the

actual product was, in fact, never tested.

Is Glucosamine Obsolete?

Patients expect their chiropractors to be experts and at the forefront when it comes to joint health and natural products. Glucosamine maybe popular today, but so were electric typewriters when word processors were introduced. At what point is a technology considered obsolete? Science marches forward and today there are far better therapeutic options available.