Dynamic Chiropractic

Nutrition and Placebo: A Reason to Choose Supplements Wisely

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The application of nutrition in the clinical setting can be confusing; there are seemingly endless scientific journal articles to read, and we now have to contend with numerous magazine articles, a plethora of television infomercials, as well as multilevel marketing companies that sell nutrition.And our professional suppliers routinely come out with new and special products that are newer and more special than the last group.

A recent double-blind, randomized controlled trial published in the *The New England Journal of Medicine*[1] can help us to weed through some of the confusion. I am referring to the Glucosamine/chondroitin Arthritis Trial, also known as GAIT. Patients suffering with mild, moderate, or severe knee osteoarthritis were treated with placebo; 1,500 mg of glucosamine hydrochloride; 1,200 mg of chondroitin sulfate; 1,500/1,200 of glucosamine and chondroitin, respectively; or 200 mg of Celebrex. There were approximately 300 patients in each group; they were followed for 24 weeks, with the primary outcome measure being a 20 percent decrease in knee pain from baseline to the 24th week of treatment.

Percentage of subjects with at least 20 percent improvement		
Intervention Group	Mild OA Pain	Mild-to-Moderate OA Pain
Placebo	60.1%	54.3%
Glucosamine	64.0%	65.7%
Chondroitin	65.4%	61.4%
Glucosamine/chondroitin	66.6%	79.2%
Celebrex	70.1%	69.4%

The results demonstrated that mild OA pain sufferers responded almost equally to placebo, glucosamine, chondroitin and Celebrex. However, the group with moderate to severe OA pain did significantly better with the glucosamine/chondroitin combination compared to all other interventions (see data table below).

GAIT is an important study because it helps to consider better some important issues about supplementation, including the placebo effect, chondroitin sulfate absorption from the gut, and the notion of pharmaceutical-grade supplements. Let's discuss each briefly.

Health care providers need to embrace the fact that providing an inert substance - that is, a placebo - often can have a significant clinical effect, even though it possesses absolutely no pharmacologic, nutritional or therapeutic qualities. Accordingly, practitioners need to consider that some of the seemingly "magical" substances they provide to patients may in fact, have no inherent therapeutic value. Just because people feel better does not immediately allow us to conclude that a "special," new supplement is clinically useful beyond placebo.

Patients with pain, and especially those with headaches, seem particularly susceptible to the placebo effect. Dr. Darryl Curl alerts us to the fact that 60 percent to 90 percent of headache sufferers will benefit from an experimental therapy, regardless of the type of therapy tested,[2]

suggesting the placebo effect can be quite high in those with headaches. The existence of the placebo effect demands that we be objective with how we view the apparent effectiveness of our treatment interventions, and further suggests we stick with supplements known to provide physiological and/or clinical effects beyond either placebo or chance.

The combination of glucosamine and chondroitin seemsto be the best for those with severe osteoarthritis,doing significantly better than glucosamine orchondroitin alone.

In addition to glucosamine/chondroitin, it is my impression that we likely can derive a physiological or clinical benefit from taking a multivitamin, magnesium, calcium, fish oil, borrage oil, ginger/turmeric, garlic, policosanol, vitamin D, lipoic acid, coenzyme Q_{10}, acetyl-L-carnitine, probiotics, digestive enzymes, proteolyitc enzymes, and perhaps a few others. Readers should be comforted by such recommendations, as they do not demand practitioners use only one company; all companies provide these basic supplements.

One of the most common questions I field regarding chondroitin sulfate involves the notion that it is not absorbable because the molecule is too large. Apparently, this notion is advanced by some nutrition companies and by certain individuals. The data from the GAIT study suggests that, in fact, chondroitin sulfate is absorbed. The combination of glucosamine and chondroitin seems to be the best for those with severe osteoarthritis, doing significantly better than glucosamine or chondroitin alone. Bucci[3] also has helped to alleviate this concern by explaining that the human gut contains chondroitinase enzymes that break down the chondroitin sulfate molecule; he also reviews several studies that demonstrated the absorption of chondroitin sulfate. Bucci also points out that chondroitin sulfate purity may be an issue, so the selection of appropriate raw material by manufacturers seems to be very important.

The term "pharmaceutical-grade supplement" has become popular in recent years. First, readers should be aware that absolutely no regulations govern the manufacture of supplements, compared with the heavily regulated pharmaceutical"industry. The term "pharmaceutical-grade supplement" can lead one to believe the supplement has been manufactured to pharmaceutical specs, which is absolutely untrue. Pharmaceutical-grade has nothing to do with making drugs or supplements. At a fundamental level, pharmaceutical-grade merely refers to the particle size of the raw material, which means we could consider refined white flour to be pharmaceutical grade.

The authors of GAIT do tell us that the glucosamine and chondroitin used in their study was made in a pharmaceutical manufacturing facility, and that it was made to the same specifications as medications. This means the glucosamine and chondroitin were treated as medications: They were properly identified and tested for purity and potency prior to, during and after manufacturing. None of these steps is required in the manufacturing of supplements by supplement companies. The importance of such manufacturing is emphasized: "Because our study was conducted under pharmaceutical rather than dietary supplement regulations, agents identical to the ones we used may not be commercially available."

References

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3. Bucci LR. *Nutrition Applied to Injury Rehabilitation and Sports Medicine*. Boca Raton (FL):

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