JOINT RELIEF: GLUCOSAMINE AND CHONDROITAN

These two substances seem to have given many people some relief from the painful knees of longtime use and abuse (osteoarthritis). They may have uses for other conditions, but there is insufficient evidence to know. There is more known about them and joints than with most natural substances, however, there are still many unanswered questions.

Glucosamine is a constituent of the large molecules that make up cartilage, tendons, ligaments, joint fluid, and other structures in the body. It is derived from crab shells or synthesized. Available as either the sulfate or hydrochloride salt, evidence suggests the hydrochloride has more limited efficacy, and needs to be taken more frequently. The largest, longest and statistically more significant studies have all been done on glucosamine sulfate. Early studies were funded by manufacturers of these products, and showed benefits. Perplexingly, recent statistically rigorous studies have been less optimistic. Adverse effects have been minimal, unlike other treatments.

Chondroitin is similar to glucosamine, and is a large molecule that is found in the joint cartilage of mammals. It seems to provide protection to cartilage, to slow progression of osteoarthritis, and may also have cardiovascular and other benefits. Whether or not patients obtain pain relief from chondroitin varies with the study, and likely the patient group. Along with orthopedists, I have recommended patients to take these two substances orally for years. Perhaps a third of my patients have obtained some relief. It is often supplied with glucosamine and other substances, which complicates determination of benefit. Sourced from bovine cartilage, there is some concern but nothing documented about disease transmission.

As glucosamine and chondroitin are benign substances, if you have knee pain due to overuse or injury to the cartilage (chondromalacia, osteoarthritis) you might consider a trial of glucosamine sulfate alone (chondromalacia), or in combination with chondroitin (osteoarthritis). Standard doses are glucosamine sulfate 500 mg three times a day, and chondroitin 1200 mg per day, for a two month trial of efficacy. Creams are not effective. The next challenge is to find a preparation that actually contains chondroitin; products costing less than $1 per 1200 mg chondroitin probably don’t actually contain what is claimed, and some more expensive ones may not, either. There is insufficient evidence regarding safety in pregnancy, so these should be avoided. Avoid, also, if you have cancer. Use caution with glucosamine if you have a shellfish allergy, and with chondroitin if you have asthma or a blood clotting disorder.

If you take a combination including manganese (Mn), be sure not to exceed the dose, as an overdose of manganese (more than 11 mg/day) can cause central nervous system toxicity. SAMe is sometimes included in joint preparations; the next column here will address this substance. Persons with depression or bipolar disorder could be affected by this component. There is no evidence of benefit from N-acetyl glucosamine.

Resources: National Center for Complementary and Alternative Medicine (a free, government sponsored website); Natural Medicines Comprehensive Database; UpToDate.