GUIDE TO
Healthy Joints

STAY ACTIVE AND FEEL YOUR BEST WITH JOINT-SUPPORTIVE ADVICE FOR LIVING A MOBILE, VIBRANT LIFESTYLE
YOU MAY NOT THINK MUCH ABOUT YOUR JOINTS—after all, on the surface, they don’t have the same panache as say, caring for your face or working out to fit into your favorite jeans. But if joints are not part of your self-care routine, they should be, because the best way to prevent problems down the road, say experts, is to pay attention to your joints now. First, it’s important to understand how joints work; then you can learn how to use your diet, supplement, exercise, and even stress-reduction habits to support them.

What if you already have pain? You are not alone. While joint pain seems to be a little-talked-about problem, as many as one in three people suffer from it, but there are solutions for relief. On the following pages, you will find easy, effective, research-backed ways to reduce your joint discomfort such as pain and get back on track.

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Collagen: what is its role in healthy joints?

Collagen is the most abundant protein found in the body, accounting for 30 percent of our total protein content, and it mostly resides in connective tissues in the skin and joints such as cartilage, skin dermis, bones, tendons, ligaments, and blood vessels. When we’re young, collagen is abundant and allows us to move with ease and enables our skin to stretch and move without sagging or developing wrinkles. As we age, collagen production naturally slows and the overall amount depletes, which can result in undesirable wrinkles in the skin and various discomforts in the joints. While you may be aware that this is happening in your skin because you can see it, it is easy to underestimate the effects a loss of collagen and other essential molecules such as hyaluronic acid has on your joints.

Who should be concerned about their joint health?

While we expect arthritis to be primarily a senior condition, it can happen at any age. Some forms strike toddlers who are still teething, while other forms attack those in the prime of their life. In addition, many people who do not have actual arthritis suffer joint pain from overuse and sports injuries.

The statistics are staggering, according to the CDC (2008):

- 1 out of 2 people develop knee OA by age 85
- 2 out of 3 obese people develop knee OA in their lifetime

These stats strongly suggest that everyone needs to pay more attention to joint health.
Given the high prevalence of joint discomfort affecting society, joint health supplements are becoming more mainstream and used as a daily supplement, much like a multivitamin, to reduce joint discomfort, enhance performance, prevent injury or achieve a speedy recovery. It is important to look for quality ingredients in our supplements, ones that are backed by clinical studies for safety and efficacy in addressing joint health. “Regardless of your age or condition, an effective approach should remain the same, supporting the joint not partially but comprehensively,” Park says. And that approach is BioCell Collagen.

Collagen types
Over 20 different types of collagen have been identified, but generally speaking, you’ll find two types of hydrolyzed collagen in the supplement aisle:

**TYPE I/III** which is abundant and found primarily in the hides, bones, and skin of animals.

**TYPE II** which is rarer and purer because it is only found in cartilage where it naturally coexists with hyaluronic acid and chondroitin sulfate in a blood-free environment.

Type II collagen is the most abundant protein in cartilage, but aging and chronic joint problems often lead to a diminished amount. According to Park, comprehensive approach via replenishing the loss of all molecules that constitute cartilage and synovial fluid is critical for healthy cartilage and smooth joint movement. BioCell Collagen contains hydrolyzed type II collagen and two other crucial molecules in a patented, naturally-occurring composition: hyaluronic acid, which is not only an essential component of cartilage but also a major lubricant in synovial fluid, and chondroitin sulfate, which provides a shock-absorbing function that contributes to overall joint comfort. “Thus, a most effective support of joint health can be achieved with BioCell Collagen offering comprehensive mechanisms of action that can safely and effectively address the deterioration of collagen type II, chondroitin sulfate, and HA at the same time,” Park says.

The first clinical trial on BioCell Collagen was performed on 89 subjects. After 45 days of supplementation with 2 grams of the ingredient daily, 80 (or 89 percent) of the participants suffering from various joint problems experienced a reduction in joint discomfort—while only one subject taking a placebo reported a similar effect. In another trial, participants with varying degrees of joint discomfort were supplemented for eight weeks. The BioCell Collagen group experienced reduced joint discomfort by about 40 percent compared to the placebo group. After these results, researchers enrolled 80 participants with an advanced degree of joint discomfort in a larger clinical trial, which confirmed the earlier findings: “71 percent of the subjects who ingested BioCell Collagen (2 grams daily for 10 weeks) experienced a significant improvement of their mobility-restricting joint discomfort,” says Park, “whereas only 30 percent in the placebo group experienced a similar benefit.”

BioCell Collagen can be found as a stand-alone supplement or combined with antioxidant or anti-inflammatory ingredients. Find the BioCell Collagen ingredient in popular products like BioCell Collagen (Vitamin Shoppe), Liquid BioCell Life Blend (Jusuru), BioCell Collagen (Health Logics), NSF Sport Certified HA Joint Formula (Purity Products), MaxiLIFE Collagen Type II (TwinLab), COLLAGEN Skin & Joint Complex (Natrol) and more which can be found at www.BioCellCollagen.com.
The importance of exercise: when you’re pain-free and when you’re hurting

EXERCISE FOR PREVENTION
If your joints are pain-free, regular exercise has an important preventive component. To continue to support healthy joints, experts suggest doing a half-hour of regular weight-bearing exercise daily, such as weight lifting, yoga, walking, aerobics or jogging. Swimming, which can help joint pain and limited mobility, shows no improvement in bone density. Effective bone-building exercise must exert pressure on the bones.

EXERCISE IF YOU HAVE ARTHRITIS
If you are already suffering from arthritis, “we encourage non-weight-bearing exercises that emphasize muscle tone and range of motion,” says Matsumoto. “Keeping muscles in good shape helps to relieve stress on the joints and improve joint stability.” Although it’s often difficult for people with joint pain to be active, proper exercise helps control inflammation and pain. “It is also the best way to deliver nutrients to your tissues and rid them of debris from the rebuilding process,” Shawn Talbott, PhD, author of Natural Solutions for Pain-Free Living (Currant, 2006). Unique because they don’t have a blood supply for nourishment and waste disposal, joints absolutely need movement every day. When you exercise, the body makes more synovial fluid—the clear, sticky substance that lubricates joints—and this wonderful stuff brings in oxygen and other nutrients while clearing out waste products.

If you have arthritis in your knees or hips, try cycling outside or on a stationary bike, which has been shown to stimulate cartilage cells and strengthen the structures around joints, says Jason Theodosakis, MD, author of The Arthritis Cure (St. Martin’s Griffin, revised 2004). Start slow and work up to 30-45 minutes four or five times a week. Swimming and water aerobics are also beneficial; like bicycling these exercises serve the joints while being partial- or non-weight-bearing and therefore less likely to trigger pain.

Other experts suggest walking or Pilates. Also, physical therapy can be very beneficial; physical therapy works well when combined with restorative yoga. If a joint hurts, don’t push through the pain, say experts. Gradually, the amount of physical movement you’re able to do will improve.

Postmenopausal women showed a 5.2 percent increase in bone density after nine months of 50-60 minutes of weight-bearing exercise 3 times each week.
Diet: Surprisingly, your food choices directly affect your joint health

In addition to the importance of maintaining a healthy weight, eating the right foods—and avoiding the wrong ones—can help ease joint discomfort. “Because cartilage, tendons, ligaments, bones, and muscles are primarily made up of the structural protein collagen, eating to slow the breakdown of collagen or enhance its rebuilding is going to help no matter which type of tissue is at the root of your problem,” says Talbott.

WHAT TO EAT

Include more whole grains in your diet and fewer refined carbohydrates, such as white bread and sugar, which set off a chain reaction of oxidation and inflammation in the body, says Talbott. He also recommends consuming lots of brightly colored fruits and vegetables—particularly berries, tomatoes, and carrots, which are packed with vitamin C, carotenoids, flavonoids, and other important antioxidants. Vitamin C is required for synthesis of collagen in various connective tissue throughout the body.

Good fats, such as the omega-3 fatty acids found in salmon, flaxseed, and walnuts, can help support healthy inflammation.

Avoid trans fats (in processed and fried foods) and saturated fats (in red meat and dairy products), which boost levels of pro-inflammatory cytokines.

Of all the omega-3s, EPA — found in deep-water fish and fish-oil supplements — tends to be the best anti-inflammatory, says Theodosakis. The research is so promising on fish that eating it or taking fish-oil supplements enables people with rheumatoid arthritis to reduce or even eliminate nonsteroidal anti-inflammatory drugs. Although 1,500 mg of omega-3s per day is a good standard dose, arthritis sufferers need upward of 3 grams daily for anti-inflammatory effects to kick in, says Paul Ratte, ND, of Woodbury, Minnesota.

Or try cod-liver oil: “It’s more of a food source, and by taking it by the spoonful it’s more cost-effective than capsules,” he says.
Ginger
The advent of drugs that treat pain and inflammation by inhibiting the COX-2 enzyme has brought to the forefront many natural compounds with similar activity, such as ginger (*Zingiber officinale*). Constituents of ginger have shown strong inhibitory effects on COX-2 in the test tube, but human tests of a proprietary ginger extract showed less impressive results. Stay tuned for more.

Nuts
In addition to providing good fats that reduce joint inflammation, nuts contain bone-protecting minerals including calcium, magnesium, and potassium, that help fend off bone density loss. “Because nuts are so full of great nutrients, substituting them for other less nutritious snack foods can benefit the bones and joints. By the way, the skins contain a lot of the nutrients, so it’s a good idea to eat them, too,” says Sara Kurlandsky, PhD, of Syracuse University in New York. Walnuts are a great choice because they contain omega-3s, but all nuts have bone and joint benefits. Aim for a handful a few times a week.

Wasabi
A study conducted by BioCell Technology showed that i-Sabi derived from *Wasabia japonica* plant (used as sushi condiment) possessed potent antioxidant and anti-inflammatory activity. In particular, i-Sabi was shown to abolish the expression of Cox-2 enzyme that mediates a cascade of pro-inflammatory pathways. “Adding wasabi into daily foodstuff can enhance our wellness by reducing chronic oxidative and inflammatory stress not only on the joint but on other body parts such as liver and brain” says Park.
Other natural pathways to joint support

ACUPUNCTURE
Acupuncture has been put to the test in numerous studies (either comparing acupuncture with no treatment or with “sham” needle sites) and found to reduce pain and improve quality of life for patients who have osteoarthritis of the knee, hip, or other joints. “Acupuncture may also provide a means of avoiding the unsettling side effects often associated with long-term use of prescription drugs,” says Mark McKenzie, LAc, dean of the Minnesota College of Acupuncture and Oriental Medicine.

STRESS MANAGEMENT
While it may be a surprising connection, managing stress through meditation, journaling, or yoga can also help alleviate joint discomfort, Talbott says. “When you are stressed, your body produces cortisol, and chronic exposure to cortisol leads to more inflammation.” Guided imagery uses the power of the mind to heal and comfort the body. A recent study showed that after only 12 weeks of guided imagery with relaxation, participants with osteoarthritis noted significant improvement in pain, mobility, and health-related quality of life. Pick up a guided-imagery CD—many are geared to coping with chronic pain—or attend a class that teaches relaxation techniques.