

especially important whenever you are starting a new medication or having elective surgery. Also see “Checklist for Supplement Users” (page 845) for advice on choosing and using supplements.

PROFILES OF POPULAR SUPPLEMENTS

The following pages contain information and guidelines on ten best-selling dietary supplements used for medicinal purposes. Most of them are herbs, but others, such as fish oil and coenzyme Q-10, are created from natural compounds. The supplements profiled in this section have been selected primarily because they are among the most commonly used. They are also among the best-studied: some, though not all, have shown promise for treating or alleviating specific conditions.

Each profile covers the use (or uses) the supplement is commonly promoted for; the evidence for its effectiveness; its safety, including known and potential interactions with conventional medications; and any special considerations you should be aware of if you decide to try the supplement.

Keep in mind that the FDA has not reviewed these supplements either for efficacy or safety. Also, the potency and purity of any products you buy are left up to manufacturers; there is no assurance that the capsules or pills in a bottle contain what is on the label. Active ingredients can vary from brand to brand and you may not be taking the same preparation that has been used in a research study—or even by a friend who recommended the supplement to you.

In compiling the profiles, we have drawn on a number of sources containing evidence-based information on dietary supplements. One especially useful general source is the *Professional's Handbook of Complementary and Alternative Medicines* (third edition) by C. W. Fetrow, PharmD and Juan R. Avila, PharmD (Lippincott Williams & Wilkins, 2003)—a comprehensive reference for which the authors reviewed hundreds of journal articles. Other helpful sources include the following:

- **National Center for Complementary and Alternative Medicine**
Telephone: 888-644-6226
Website: www.nccam.nih.gov

- **United States Pharmacopeia (USP)**
Telephone: 800-822-8772
Website: www.usp.org
- **Quackwatch**
Website: www.quackwatch.org

Coenzyme Q-10

WHAT IS IT?

Coenzyme Q-10, also known as CoQ10, ubiquinone, ubiquinol, and ubiquinone, is an antioxidant that is found naturally in the body, and in small amounts in meat and seafood. The supplement is marketed primarily as a treatment for heart failure and coronary heart disease. It is also purported to be useful for treating high blood pressure, angina, arrhythmias, Bell's palsy, deafness, diabetes, heart problems caused by certain chemotherapy agents, immunodeficiency, mitral valve prolapse, and gum disease.

COMMON FORMS

Available as a tablet, capsule, and liquid, and as a topical preparation for treatment of gum disease. In addition, an intravenous/intramuscular form has been used for heart protection during heart bypass surgery.

HOW IT WORKS

Coenzyme Q-10 is an antioxidant that destroys free radicals, protecting cell membranes from oxidative damage. This includes protecting heart muscle from damage caused by interruptions in blood flow, as occurs in heart attacks. In addition, it is essential for production of adenosine triphosphate (ATP), a major source of energy for cellular reactions.

RESEARCH AND EVIDENCE

Because people with heart failure are deficient in coenzyme Q10, researchers hoped that coenzyme Q10 supplementation might be an effective treatment for heart failure. Unfortunately, controlled trials in people have produced mixed results, and insufficient evidence exists for this use.

Coenzyme Q10 did produce promising results in

a preliminary study of 144 people who had suffered a recent heart attack. The study found that people randomized to take 120 mg per day of coenzyme Q10 for 4 weeks had fewer heart problems such as angina and arrhythmias compared with those who took a placebo. Larger studies are needed to confirm these results.

In one 12-week trial in people with hypertension, taking 60 mg of coenzyme Q10 twice a day reduced systolic blood pressure.

Trials have found that combinations of coenzyme Q10 and vitamin E do not reduce levels of low-density lipoprotein (LDL) cholesterol. Coenzyme Q10 is also ineffective for reducing fatigue.

POSSIBLE SIDE EFFECTS

Damage to heart during intense exercise, and gastrointestinal problems such as loss of appetite, diarrhea, abdominal pain, and mild nausea.

POTENTIAL DRUG INTERACTIONS

Coenzyme Q10 may make warfarin less effective. Oral antidiabetic agents such as metformin (Glucophage) may lessen the effects of coenzyme Q10 supplements.

SPECIAL CONSIDERATIONS

- Coenzyme Q10 need not be taken with the cholesterol drugs called statins, as some alternative remedy practitioners suggest. Although statins may deplete blood levels of coenzyme Q10, tissue levels appear to remain normal. It is also unclear whether a decline in blood levels of coenzyme Q10 is harmful or whether taking supplements to replace it is beneficial.
- People with heart disease should not attempt to self-medicate with coenzyme Q10. If your doctor recommends coenzyme Q10, typical doses are 100 to 600 mg for heart failure (2 mg per kilogram of body weight), 120 mg a day for 4 weeks after a heart attack, and 75 to 360 mg a day for high blood pressure.
- Do not perform intense exercise during therapy with coenzyme Q10 because damage to heart muscle may occur. Some studies have suggested that coenzyme Q10 shortens the time it takes for heart muscle to become fatigued.
- People with heart failure should always report changes in their condition to their doctor.

Echinacea

Latin name: *Echinacea purpurea*, *e. pallida*, and others

WHAT IS IT?

Extracts of echinacea, a plant that is part of the daisy family, have been used as herbal medicines for centuries. Nine varieties of echinacea grow in the United States, and three of them—the most common being *Echinacea purpurea*—are used in dietary supplements. The principal claim made for the supplements is that they strengthen the immune system and can thereby ward off infections, particularly colds and flu. As part of its immune-boosting effect, echinacea is also claimed to be effective for speeding up the healing of burns, cuts, wounds, and inflammations of the skin.

COMMON FORMS

Available as capsules, tablets, and in other forms that include juices, lozenges, teas, and tinctures.

HOW IT WORKS

The herb is pharmacologically complex, containing at least 15 different compounds. Although several classes of compounds appear to stimulate immune system activity, no single component has been identified as the “active ingredient” responsible for the benefits attributed to echinacea.

RESEARCH AND EVIDENCE

Echinacea has been extensively studied, with mixed results. In some studies examining its effect on treating the common cold—probably the most popular use of the herb—echinacea seemed to have no effect; in others, it appeared to reduce the severity or duration of symptoms. Moreover, in most studies finding that echinacea stimulated the immune system, the herbal extract was injected, a form of administration that is not available in the United States. As a strategy for preventing colds, the evidence is even less persuasive: studies show little difference between echinacea and a placebo. A recent review found insufficient evidence to recommend echinacea for either the treatment or prevention of upper respiratory infections.

POSSIBLE SIDE EFFECTS

Side effects in healthy people have seldom been