



Collagen drinks – do they really work?

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Collagen drinks and supplements have been getting a lot of buzz lately, from media advertisements and patients asking us about them. The question is, do they really do anything? Previously, most collagen supplements in the beauty industry came

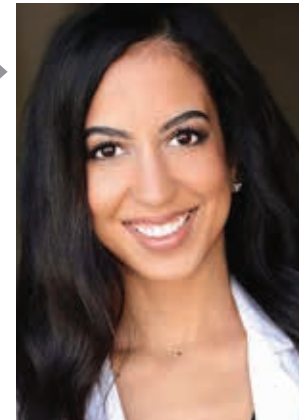
Hydrolyzed collagen is often derived from bovine bone and cartilage. Usually, the bone is crushed, ground, defatted, soaked in acid to remove the calcium, soaked again to break the collagen bonds, and then dehydrated, and typically ends up in the form of a powder. In this form, it is soluble in cold liquids and easily digestible. Hydrolyzed collagen taken orally has been shown to have

improve these diseases? Or could supplementation exacerbate or bring on these disorders if consumed in excess? In collagen vascular diseases, such as scleroderma, where apparent autoimmune inflammation of collagen occurs, would supplementation exacerbate the disease by bringing about more collagen to attack, or would it improve the condition by providing new collagen where there may be a defect? Would it help in conditions of collagen deficiency, such as osteogenesis imperfecta?

The source and type of collagen may also provide a difference in the effect it has, if any. Collagen itself has to come from an animal, a human, or a synthetic source. Animal sources are most commonly from bovine and porcine sources, although marine sources are increasingly being used. Bovine was once the most commonly used (as with Zyderm and Zylplast). Bovine collagen presents the risk of allergenicity and, less commonly, bovine spongiform encephalopathy. Plants do not contain collagen, but are purported to help boost one's own natural collagen by providing a source of vitamins and nutrients required for collagen production/remodeling. For example, carrots and sweet potatoes are rich in vitamin A, and vitamin A derivatives such as isotretinoin and tretinoin have been shown to provide collagen remodeling in improving acne, skin texture, and wrinkles. In a clinical trial, an oral drink containing soy, antioxidants (soy isoflavones, lycopene, vitamins C and E), and a capsule of fish oil was shown to reduce facial-wrinkle depth in postmenopausal women thought to be caused by new collagen deposition (*Int J Cosmet Sci.* 2014 Feb;36[1]:22-31).

Type I collagen is found in tendon, ligaments, bone, and cornea. Types I, III, IV, and VII are the most predominate in skin (I in scar tissue, III in normal dermis, IV in basement membrane, and VII in dermal-epidermal junctions). With at least 28 types of collagen in the human body, perhaps the type of collagen being supplemented might play a role in where it is integrated and whether it benefits skin versus other tissues.

Many questions about collagen drinks and supplementation remain to be answered. Photoprotection from an early age and a healthy diet that supports production of our bodies' own natural collagen are the best measures for skin health. With the surplus of collagen drinks and supplements now on the market, objective studies should be conducted and are warranted to answer these questions for ourselves and our patients. ■



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in the form of a topical cream or an injectable, with collagen being the main filler of choice before hyaluronic acid fillers became available. Today, collagen supplementation in the form of oral pills and drinks is rampant. These drinks and “vitamins” are purported to improve skin and provide a more youthful appearance, both from an immediate and preventative standpoint. Some of the drinks come from companies in Japan and beyond.

According to market forecasts, the collagen supplement industry is anticipated to be worth \$6.63 billion by 2025, up from \$3.71 billion in 2016. An email advertisement this month from *NewBeauty* magazine claims one brand of collagen supplementation “with grape seed extract [as] an effective collagen drink for the skin.” Each 1.7-oz bottle contains 13,000 mg of marine hydrolyzed collagen with six antiaging ingredients that – the ad claims – will help visibly transform your skin to a fuller, firmer, younger look in as soon as 21 days.

Diet absolutely plays a role in our overall health and skin appearance. But can these concentrated collagen drinks provide an increased benefit?

antioxidant properties, and antihypertensive and lipid-lowering activity, as well as reparative properties in damaged skin. Besides this, oral collagen supplementation has not been studied, and research in peer-reviewed journals has not yet been published demonstrating its benefit for skin and beauty (*J Cosmet Dermatol.* 2018 Feb;17[1]:20-6).

We know from prior experience with injecting collagen in the lips – namely from bovine (such as Zyderm and Zylplast) or human-derived (such as Cosmoderm and CosmoPlast) sources – that it provided beautiful and often natural-appearing results, which, however, did not last. If longevity is an issue with collagen injections, assuming proper absorption from the gastrointestinal tract and subsequent integration into skin, how long should we expect the results from drinking collagen to last in skin, if any? If it does work and is something that improves skin when used on a continuous basis, is there an endpoint at which the benefit is maximized or where an excess of collagen could be detrimental?

Collagen disorders are those where there is inflammation or deficiency in collagen. Could supplementation