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What are the benefits of collagen, and can it prevent skin ageing?

Known for its ability to prevent and repair the signs of skin ageing, collagen features as the star ingredient in many anti-ageing beauty products. Our bodies naturally produce this protein, and following a nutrient-rich diet can help to ensure that our collagen stores are healthy.

But are there any benefits of collagen supplements and creams? And if so, which form works best?

Is collagen good for you?

In the beauty industry, there's plenty of buzz around collagen. You can find collagen listed as the star ingredient in many [anti-ageing](#) facial lotions as well as collagen supplements in the form of tablets, powder or drinkable liquid options.

These products claim that absorbing collagen through supplements and collagen creams can keep your skin healthy and beautiful, by working in a similar way to the collagen our bodies naturally produce.

We explore how our natural source of collagen plays a key role in skin health and appearance, and look at the other health benefits of collagen.

Derrick Phillips, consultant dermatologist at the [Cadogan Clinic](#), says "Collagen is a key structural [protein](#) that is naturally produced by our bodies. It acts as scaffolding, providing support to the skin, ligaments, muscles and bones."

What does collagen do for skin?

Mehmet Göker, a dermatology specialist at [Vera Clinic](#), explains how collagen plays a key role in skin health: "Collagen helps skin cells stick to one another and also gives the skin strength and elasticity. Collagen production decreases with age, which contributes to skin wrinkling and sagging. Collagen is what keeps our skin from sagging, giving us that plump, youthful look."

As we get older, our bodies produce less collagen. Existing collagen fibres are also prone to damage, meaning they lose their strength and thickness which results in skin ageing¹. According to Phillips, this process can be "accelerated by [UV exposure](#), [smoking](#) and [pollution](#) leading to fine lines, wrinkles, and [dry skin](#)'.

What are the benefits of collagen?

In the beauty industry, collagen is valued for its ability to make skin appear more youthful, but the health benefits of collagen extend much further.

Collagen is also important for:

- **Healthy bones** - collagen contributes to the formation of strong bones² that are less prone to breakage, plays a role in bone tissue regeneration³, and prevents bone loss.
- **Healthy joints** - lower collagen production can increase the rate of cartilage and joint degradation and has been linked with osteoarthritis⁴.
- **Muscle mass** - collagen is also an important component of muscle mass⁵.
- **Heart health** - collagen also provides structure to the blood vessels (arteries) that carry blood from the heart to the rest of your body. Lower collagen levels may cause arteries to become less flexible⁶ which can lead to heart problems.

What is the best source of collagen?

In Great Britain, the skincare industry is worth more than £2 billion⁷. The leading category in this market is cosmetic facial care, worth around £1 billion⁸. These are the products people buy to improve their appearance, rather than to address a medical problem, and this popular category includes collagen creams and collagen supplements to fight the appearance of skin ageing.

Although these beauty products claim to have a significant impact on skin ageing, the vast majority of collagen comes through our diets. Collagen is made up of amino acids, the building blocks of proteins. Eating a protein-rich diet means we are consuming enough amino acids for our bodies to produce a good amount of collagen naturally.

"Whether or not you use collagen beauty products, you must eat a [healthy diet](#) that includes all the amino acids for your body to make its own supply of collagen," advises Göker.

Do collagen creams work?

Moisturising collagen creams are rubbed onto the skin. Therefore, the ability of these lotions to reduce visible wrinkles, dryness, and skin sagging depends on how well collagen can be absorbed through the skin.

"Collagen-containing beauty creams hydrate the skin but are unable to provide the same structural support as naturally produced collagen," says Phillips. "This is because collagen is a large molecule that cannot get into the inner layer of the skin - the dermis - where it needs to be to work effectively. In general, these creams will moisturise but are less likely to have an impact on wrinkles and fine white lines."

Emma Hughes, consultant doctor and [Pura Collagen](#) expert, agrees that collagen creams are not the most effective source of collagen: "The skin's number one job is to keep things out of the body, so when you're attempting full-scale change, you need to alter that state of skin, either from 'tweakments' like resurfacing or injectables, or from within by collagen-boosting supplementation. I find that a combination of both is effective."

Are collagen supplements safe?

There has been more research into the benefits of collagen supplements. One 2019 review of 11 studies involving 805 participants found that oral collagen supplements produced promising results for skin ageing, increasing skin elasticity, hydration, and skin thickness which can reduce fine lines⁹. The review also concluded that collagen supplements are generally safe as no side effects were reported.

Hughes describes how collagen supplements work: "Due to the body's natural wind-down of producing collagen effectively as we age, specific collagen supplementation can be very effective at stimulating the fibroblasts - the cells that produce collagen."

Hughes says to look for collagen blends that:

- Are clean - meaning they are free from fillers, stabilisers and/or sweeteners.
- Use patent hydrolysed collagen peptides - these are forms of collagen that are broken down and are therefore easier to digest.
- Use key supporting ingredients like [vitamin C](#) and [biotin](#) - these support the body's natural collagen production.

In most studies, the dosages of collagen supplements range from 2.5 grams of collagen per day (g/d) to 10 g/d and were shown to be both safe and effective. Evidence suggests that the amount you choose to take may depend on what other benefits of collagen supplementation you wish to see.

While all appeared to improve skin ageing, the following doses were shown to have the following benefits:

- 2.5 g/d - may benefit **skin health**¹⁰, **joint health**¹¹, and improve **hydration**¹².
- 5 g/d - may improve **bone density**¹³.
- 15 g/d - may improve **muscle mass**¹⁰.

How to get collagen in your diet

These products should only ever be used in addition to – and not as a replacement for – a healthy diet that enables your body to make its own collagen supply.

"My main advice to increase and absorb more collagen is to focus on your diet," says Göker. "When your body makes collagen, it combines amino acids. These are the nutrients you gain from eating protein-rich foods like beef, chicken, fish, beans, eggs and dairy products.

"This process also requires vitamin C, zinc, and copper. Eating foods rich in vitamin C and amino acids can increase the levels of [hyaluronic acid](#) and collagen in the body. Both are important for healthy skin."

Research shows that people following [restrictive diets](#) are at risk of decreasing their collagen production and increasing their rate of collagen ageing¹⁴. However, being [overweight](#) is also linked to ageing¹⁵.

Collagen ageing doesn't just affect your skin's appearance. It concerns your cartilage, heart ventricles, and artery walls – and issues with these can lead to a number of serious health problems.

Foods that promote collagen production

- Protein sources (containing amino acids) – includes chicken, beef, fish, pork, eggs, Greek yoghurt, cottage cheese, and beans.
- Vitamin C sources (crucial for collagen synthesis) – includes citrus fruits, strawberries, potatoes, peppers, and broccoli.
- Foods containing gelatin (a protein substance derived from collagen after it's cooked) are usually obtained by boiling animal skin, tendons, ligaments, and/or bones in water.

Further reading

1. [Rodríguez et al: Collagen: A review on its sources and potential cosmetic applications.](#)

2. Garnero: The role of collagen organization on the properties of bone.
3. Ferreira et al: Collagen for bone tissue regeneration.
4. Bay-Jensen et al: Blood and urinary collagen markers in osteoarthritis: markers of tissue turnover and disease activity.
5. Wu et al: Biochemistry, collagen synthesis.
6. Nezwek and Varacallo: Physiology, connective tissue.
7. Statista: Market value of skincare products in Great Britain from 2009 to 2022.
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9. Choi et al: Oral collagen supplementation: a systematic review of dermatological applications.
10. Proksch et al: Oral intake of specific bioactive collagen peptides reduces skin wrinkles and increases dermal matrix synthesis.
11. Schuss et al: Effect of the novel low molecular weight hydrolyzed chicken sternal cartilage extract, BioCell Collagen, on improving osteoarthritis-related symptoms.
12. Bolke et al: A collagen supplement improves skin hydration, elasticity, roughness, and density.
13. Elam et al: A calcium-collagen chelate dietary supplement attenuates bone loss in postmenopausal women with osteopenia.
14. Frey: Collagen, ageing and nutrition.
15. Salvestrini et al: Obesity may accelerate the aging process.

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