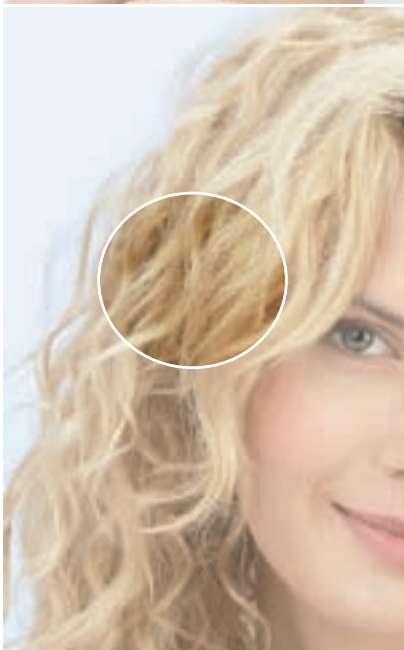


Do your skin, hair and fingernails have you in despair?



Silica gel makes women happy

TECHNICAL INFORMATION



Flaccid connective tissue, brittle nails, thin and dull hair.

High time to do something about it - now!

Firm, beautiful skin from head to toe is something all women dream of. Frequently, however, there is a yawning gap between dream and reality: Only a lucky few are blessed with firm skin; most have withering, sallow skin and flaccid connective tissue. At the same time, hair and fingernails fail to grow the way we want them to, and become brittle, chapped, and dull.

It is a sorry tale many a woman has to tell. After their first pregnancy, if not earlier, many women discover that natural beauty has its limitations. In their desperation, they experiment with a host of products in the hope of recovering their previous looks and, in doing so, of boosting their self-confidence. They seek salvation in pastes, creams, shampoos, and cure treatments. But to no avail! For what they are not aware of is that flabby skin is not caused on the outside; it comes from the deeper-lying skin layers containing the connective tissue. Structural substances, in particular, that act from within strengthen connective tissue, skin, hair, and fingernails.

This technical brochure provides information on how you can help your customers and support them with advice on how to boost their self-confidence.

Connective tissue keeps us in shape

The connective tissue keeps the human body in shape. It is an essential component of bones and cartilage, ligaments and tendons, encloses the organs and ensures the skin's elasticity. There are different types of connective tissue. The skin, or more specifically its two bottom layers, the dermis and the subcutis, contain the so-called collagenous connective tissue. As the term implies, it is characterized by a multitude of collagen fibers that tauten the tissue. These fibers, however, are joined by elastic fibers that contain the protein elastin. While collagen has a high tensile strength, elastin has the ability to stretch. The dermis, the middle skin layer, consists of a multitude of cross-linked connective tissue fibers with a high tensile strength and a high elasticity that give the skin precisely these properties. The dermis also contains the lymphatic vessels, glands, hair follicles, and blood vessels that supply nutrients and oxygen to the tissue. The dermis stores water and acts as a nutrient reservoir.

The dermis extends into the outermost layer of skin, the epidermis, and supplies it with nutrients, for the epidermis itself does not contain any blood vessels. Especially the deepest layer of the epidermis, the stratum basale, is dependent on this supply, for this is where the skin regenerates.

The bottom layer of skin, the subcutis, is made up primarily of connective tissue with fat cells (subcutaneous adipose tissue), blood vessels, and nerves. It acts as a water and nutrient reservoir, absorbs mechanical strain, and keeps us warm.

The biological difference that causes problems

In women, the subcutaneous connective tissue is only loosely cross-linked, enabling it to stretch considerably when necessary. This has both benefits and drawbacks: During pregnancy, of course, this is a highly desirable property. In women with a genetic disposition to develop weak connective



Women



Men

tissue, however, or in times of excessive increase in fat, the loose fibers no longer provide sufficient support for the cells. This results in unattractive dimpling of the skin.

[1] Men do not normally have weak connective tissue, because their dermis with its high tensile strength is thicker in comparison with the subcutis and the connective tissue ribbons of the subcutis are cross-linked more strongly, allowing a more efficient control over the fat cells.

Nutrient supply from the connective tissue: Hair, toenails, and fingernails

Healthy, strong connective tissue is not only the basis of healthy, beautiful skin, but also a prerequisite for strong hair and firm fingernails. For hair and nails are appendages of the skin. Like the epidermis, they are supplied with nutrients from the skin layers containing the connective tissue. The nails, thick horn-like plates, sit on the nail bed, which corresponds to the dermis. The nail plate consists primarily of a protein called keratin, which gives it toughness and stability. The nail bed underlying the nail plate is amply criss-crossed by blood vessels and nerves. Both hair and toenails and fingernails consist mainly of keratin. The growth centers of the hair, the papillae, are located in the lower section of the dermis. This is also where the blood vessels that supply the

hair with nutrients are found. The individual hairs are pushed upward through the follicles, cup-shaped pits in the epidermis, towards the skin's surface.

Losing elasticity with age

As we grow older, our connective tissue and skin gradually lose their power of regeneration. Their elasticity deteriorates. This process does not necessarily set in after the age of 35. The first signs of weak connective tissue are frequently already visible around the age of 20. Hair, too, does not necessarily turn gray when we are 50, but may start doing so much earlier. Most of us don't even notice these initial changes.

Silica promotes strong connective tissue from within

To ensure that skin, hair, and nails look good both when we are young and when we mature, the connective tissue needs to be strengthened from within. Only as long as the skin layers containing connective tissue and blood vessels are intact, can they perform their duty as a supplier of nutrients to the epidermis, hair, and nails. And only then can metabolic waste products be transported away from the tissue. Healthy connective tissue is also a prerequisite for wound healing and a barrier to

pathogens in injuries or infections. The trace element silicon is a structural element that supports the connective tissue. Administered in the form of a colloidal silicic acid gel, it is absorbed swiftly and efficiently by the human body, providing relief for many disorders that are attributable to weak connective tissue structures.

What effect does silicon have?

In the seventies, Professor Edith Muriel Carlisle, a pioneer in the field of silicon research, demonstrated for the first time that silicon is a vital element for animals. In the wake of this discovery, the essential significance of this trace element for the human body and, above all, for the connective and supporting tissue, was discovered and researched in greater detail. Scientists found that silicon is contained in especially high quantities in the connective tissue structures of the skin, aorta, bones, tendons, etc. [2] [3]

Today, the impact of silicon in the connective tissue is general knowledge, even though its influence has not been clarified down to the last detail:

- **Silicon promotes the synthesis of the structural proteins of the connective tissue** [4] [5].

In particular the content of collagen, a major component of the connective tissue, increases significantly through the supply of silicon. This has been confirmed in examinations of embryonic cartilage tissue. In scientific tests with cartilage cells (chondrocytes) from in-vitro-cultures, the collagen amount in samples enriched with silicon increased by 243 percent. [2] This increase is attributed by scientists primarily to the fact that the trace element promotes an increased productivity of an enzyme called prolyl-hydroxylase [6]. This enzyme changes prolin into hydroxyprolin, a key component of collagen.

- **Silicon increases the water binding ability of the tissue** by increasing the level of water-binding glycosamine glycans.
- Moreover, it is deemed highly probable that silicon itself is also a component of the

glycosamine glycan-protein complexes in the connective tissue. [2]

- Glycosamine glycans are long-chained molecules made up of chains of amino acids. They include hyaluronic acid, a key component of the extracellular connective tissue matrix. All glycosamine glycans are highly hydrated, i.e. are capable of binding large quantities of water.

- As the concentration of glycosamine glycans increases under the influence of silicon, so does the moisture level of the skin, thus enhancing the tissue's elasticity. The glycosamine glycans function much like shock absorbers: When pressure is applied, water is pressed out of the molecules – as the pressure drops, they quickly absorb it once more [7].

- The high water level also promotes a healthy metabolism within the tissue. For example, the water bonded with the aid of the silicon ensures a controlled supply of nutrients to the cells of the epidermis and the removal of harmful waste products from the tissue.

- Glycosamine glycan concentration drops in particular in older people [7]. The skin and the connective tissue lose moisture and elasticity. Silicon counteracts this process by helping to keep the content of water-binding substances at a high level. However, the silicon content of the skin also drops as we grow older [2]; consequently, the only way to keep the connective tissue young and elastic is by ensuring a sufficient external supply of silicon. Using the example of the aorta, scientists have demonstrated the correlation between the age-related increased loss of elasticity and the drop in the silicon content of the connective tissue [6].

- **Silicon is a key factor in keratin cross-linking**, which is essential for the structure and appearance of hair and nails [6].

Silicon gel promotes beauty from within

Poor elasticity of the connective tissue, ageing and dry skin, weak tendons and ligaments, brittle nails and thin hair are frequently the unattractive consequences of an insufficient level of active silicon

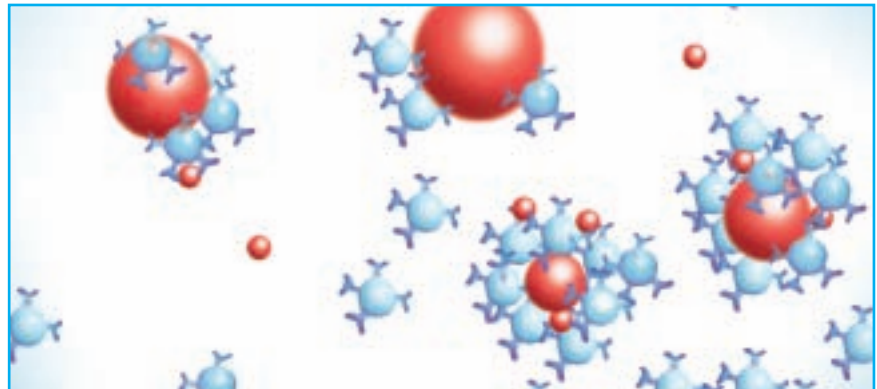
compounds in the tissue [2] [6] [8]. Ingested orally on a regular basis, Original Silicea Gel increases the silicon level in the body. The connective tissue is thus fortified from the inside, allowing it to resume a sufficient supply of nutrients to skin, hair, and nails.

Purely mineral Original Silicea Gel contains silicon in the form of a microdispersed silicic acid gel (a compound of silicon, oxygen, and water). On account of the small particle size, the silicic acid molecules dissolved in the colloid are able to easily penetrate the intestinal walls, contrary to siliceous earth molecules, and travel through the blood stream to the connective tissue. Here, in the lower layers of the skin, they unfold their positive effect on skin, hair, and nails, as studies have demonstrated [9] [10] [11]. Silicon is inherently present in the body; the ingestion of silicic acid has produced no known side effects.

Applied externally: Silicic acid gel binds wound discharge

Due to its high binding capacity for pathogens and wound discharge, Original Silicea Gel is also excellently suitable for external application [12]. Small injuries and light burns heal faster when treated with Original Silicea Gel. Skin irritations and allergies such as nicks from shaving, sunburn, or insect bites, are soothed. Moreover, silica gel promotes the healing process of impurities of the skin [1].

Silica binds with substances



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Tips for healthy connective tissue

Most people know very well what their lifestyle and diet should look like to ensure their heart stays healthy – but only few know how to strengthen their connective tissue. Below you will find some practical tips for maintaining a strong connective tissue, which will interest especially your female customers

• Physical exercise

A very effective way to get rid of those unsightly pads of fat in the lower skin layers and to take some strain off the connective tissue is physical endurance training. This training should be done at least three times a week for 30 minutes. Sports such as swimming, cycling, and jogging are especially effective for getting your connective tissue back into shape.

• Exercise for problem areas

Exercises designed especially for hips, buttocks, stomach, or thighs can also help improve the firmness of connective tissue.

• Alternating hot-cold showers stimulate the blood circulation

Alternating hot-cold showers once a day – preferably in the morning – have a stimulating effect on your blood circulation. The skin's blood circulation is cranked up and supply with oxygen and nutrients is improved.

• The right diet is essential!

If you seriously want to improve weak connective tissue, you will need to avoid high-fat foods, sugar-containing foods, and foods with high levels of salt. Instead, adopt a fiber-rich and balanced diet. Wholegrain products, fruit, and vegetables contain many vital substances and are therefore especially good for your health.

• Absurd diet programs

If your connective tissue is weakened (cellulite) because you are too heavy, you may as well spare yourself the ordeal of extreme starvation diets. Generally, people deny themselves just about everything, starving themselves to lose a bit of fat, only to end up gaining back all the weight they've lost the moment they stop dieting. This places a dual strain on the connective tissue: It is temporarily undernourished, and what's more, it is forced to alternately contract and expand. The fatal consequence: Skin and connective tissue start to sag.

• Vitamins and more

Vital substances supply the skin and connective tissue with nutrients. Apart from the silicon contained in silicic acid, other especially skin-friendly agents are the vitamins A, B2, B3, B6, C, E and H, the provitamin B5, the coenzyme Q10 as well as iron, zinc, selenium, and copper. As a rule: What is good for the skin and the connective tissue is also good for the hair and nails.

• Gentle oils

Unsaturated fatty acids are indispensable components of skin fat. Black cumin seed oil has a high share of these unsaturated fatty acids. They have a soothing effect on sensitive skin and keep it moist and soft. Even Cleopatra and Nefertiti pampered their bodies with this oil.

• Drinking for beauty

A sufficient liquid intake ensures a healthy cardiovascular system. Apart from that, water makes us attractive, because connective tissue and skin require large quantities of water to maintain a firm appearance. You should drink two to three liters of water per day to be on the safe side.



• The three-month cure treatment for weak connective tissue

As a precaution against weak connective tissue and its consequences for skin, hair, and nails, it is advisable to treat yourself to a three-month beauty cure with silica gel once or twice a year. By the way: This treatment is not only beneficial to women.

- Purely mineral silicic acid gel
- No additives or preservatives
- Also suitable for children
- No known side-effects



New study confirms: Visibly thicker hair in only 6 months

Many scientific studies have proven that colloidal silicic acid strengthens the connective tissue from within and has a positive effect on the structure of skin, hair, and fingernails. In a new open clinical study conducted at the University Clinic of Hamburg-Eppendorf [13] the efficacy of Original Silicea Gel on the hair structure of healthy women with thin hair was examined. The 55 test subjects ingested the silica gel daily over a period of six months; two women terminated the treatment prematurely. The hair thickness of all test subjects was below $100\frac{1}{4}$ μm . This is the threshold value below which hair is defined as thin according to international standards.

The result of the study: After treatment with silica gel on a regular basis, the hair thickness increased significantly by an average of 8% after three months, and it increased significantly by an average of 12.7% after six months. This, however, is only the beginning, for according to the final evaluation report of the study, "it can be assumed that an extended oral intake of Original Silicea Gel will result in a further strengthening of the hair". These objective measurements were confirmed by the assessment by the study doctor on the basis of an evaluation scale. According to his evaluation, the test subjects' hair looked visibly better after six months, being thicker and glossier in appearance and displaying fewer split ends. The study doctor's assessment was corroborated in all points by a self-assessment on the part of the test subjects. Moreover, the women reported that the psychological strain caused by their thin hair prior to taking part in the study decreased considerably in the course of the six-month study period. In view of these results, the final report of the study comes to the conclusion that Original Silicea Gel with its high tolerability "can be used without any restrictions for the effective treatment of thin hair."



Significant effect on skin, hair, and fingernails

In an open clinical study conducted by Dr. Allan Lassus at the "Helsinki Research Centre" [14] the effect of colloidal silicic acid on skin, hair, and fingernails was tested. The study was conducted in 50 women suffering from aged skin, fragile, thin hair, or brittle fingernails; three test subjects terminated treatment after 30 days. Over a period of 90 days, the test subjects were given 10 ml of colloidal silicic acid daily. In addition, they applied colloidal silicic acid to their face twice a day. In the course of the study period, a continuous, statistically significant improvement of the structure of skin, hair, and fingernails was observed. Dr. Lassus summarizes the study results as follows: "In the 47 treated test subjects, a distinct improvement of skin thickness and turgor, wrinkles, and structure of hair and nails was recorded."

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