

Gelatine – Used Almost Everywhere

The invisible helper

Gelatine is a natural product that is important in the food industry and in nutrition. Gelatine is also successfully used in other sectors of industry, such as in the pharmaceutical and photographic industries. Did you know, for example, that papers for ink-jet printers are of the highest quality precisely because gelatine lends them their specif-

ic surface properties, or that blood substitutes are made using gelatine? In some quality wines, fruit juices and beer varieties, gelatine is used to clarify the drinks. In short, gelatine is to be found wherever gelling agents, stabilisers, binding agents, emulsifiers, foaming agents and thickening agents are needed. ■

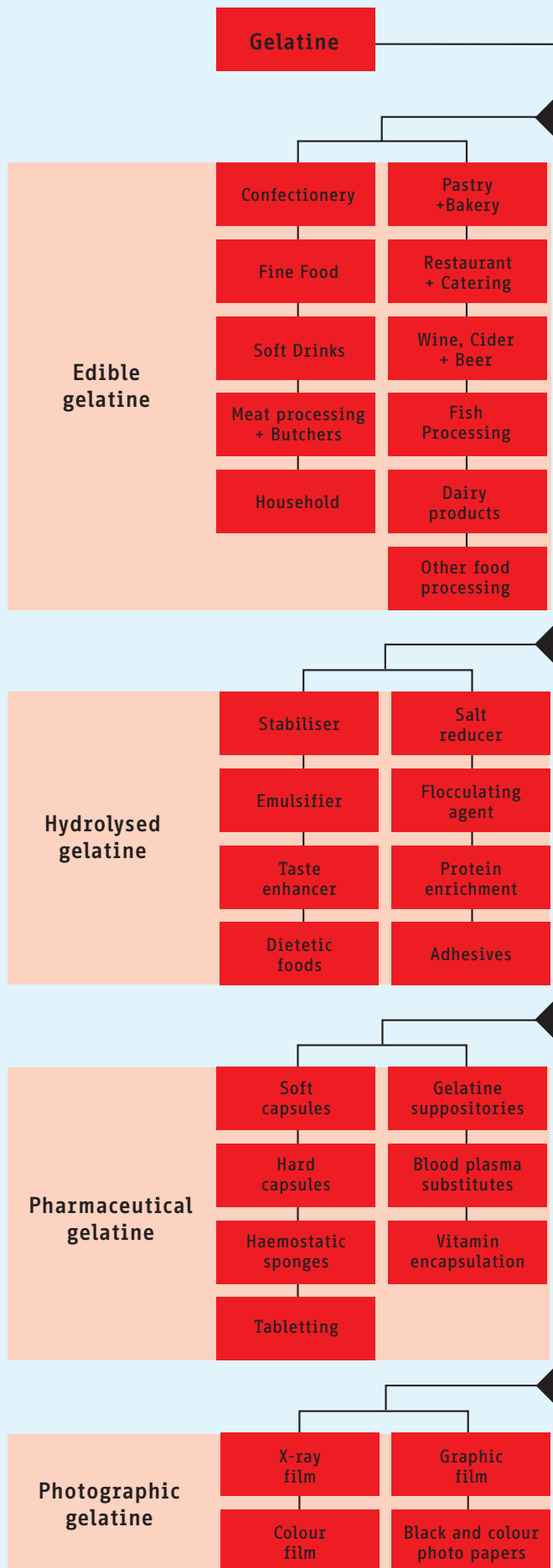
... in the pharmaceutical industry

In the pharmaceutical industry gelatine is used to manufacture hard and soft capsules. It protects the medicines against harmful influences, such as light and oxygen. Soft capsules are mainly used for liquid fillings, and hard capsules for powders. Gelatine helps to bind the active pharmaceutical agents and extend their shelf lives. Thanks to careful selection and dosage, even the release speed of active medical agents

can be impacted with the use of capsules. Gelatine-coated tablets (caplets) are a new technological development, with the gelatine coating ensuring that patients can swallow the caplets easily. In emergency treatment plasma expanders (blood volume replacements) based on gelatine are often used to replace lost blood, hence restoring the patient's blood volume balance. ■



Gelatine



... in food manufacture

There are many diverse uses for gelatine in modern food production. The main reason for this is the unique ability of gelatine to melt when heated to body temperature and to become firm again on cooling. Its pleasant eating properties make it irreplaceable for the foodstuffs industry.

Dairy products are very popular – and gelatine plays an extremely important role in their preparation and in the development of ever newer varieties. The correct dosage and the right type of gelatine ensure creamy, light yoghurts and more solid dairy products, such as curd cheese and kefir.

With candies gelatine lends products such as jelly babies

and wine gums that pleasant mouth feeling. The correct choice of gelatine gives marshmallows their foamy texture and stability.

With pâtés and aspics it ensures a delightful appearance. Many salami and pepper sausage varieties are protected from drying out with a protective coating of gelatine. In the manufacture of fish products gelatine is mainly used for decorative purposes. Here, gelatine protects against the effects of light and oxygen, as well serving to enhance appearance. Its property of melting at body temperature makes gelatine an indispensable substitute for fats in low-fat foods. ■

... in the modern photographic industry

Silver salt photographic materials comprise as many as 15 gelatine layers that are coated onto film or paper. Photographic developing chemicals can easily penetrate the gelatine layers and then be removed by rinsing in the later stages of the developing process. The important factor for the complicated layer technique is the capacity of gelatine to form a solution when heated, to turn back to a gel as

it cools down, and to remain durable after water has been removed. The properties of gelatine are also required for specialist photographic films, such as colour and X-ray films. Gelatine is also indispensable for digital photography. Ink-jet papers coated with gelatine guarantee brilliant colours and clear outlines, resulting in prints of the highest quality. ■



... here too gelatine is practically irreplaceable

■ Collagen hydrolysates and collagen tensides based on gelatine are fully biodegradable as active agents in detergents. In their capacity as fibre-protecting proteins, they have a tangible effect in special detergents for wool, silk and other delicate textiles. As an additive in washing-up liquids, they develop their dermatological benefits, protecting the skin against aggressive tensides and other surfactants.

■ In the manufacture of matches, the binding properties of gelatine are indispensable for the match-heads.

■ Gelatine is also used in the paper industry. Here, it improves resistance to moisture and the stiffness of the paper (with bank notes for example).

■ Zinc and cadmium can be cleaned through the addition of gelatine to electrolytic baths. Gelatine enables the sedimentation of dirt and thus creates the basis for the production of metals of high purity.

By the way: In the restoration of buildings, such as the Semper Opera House in Dresden, one of the most beautiful music theatres in Europe, or the Pont Alexandre III, the largest bridge in Paris, gelatine is used as an elastic adhesive. ■



Stay Mobile with Gelatine

Osteoarthritis – the “silent” epidemic

Osteoarthritis

- Osteoarthritis is one of the most common diseases in the world, affecting more than half of all those over the age of 65. In the USA nearly 40 million people suffer from the disease. It is estimated that some 103 million people in Europe suffer from osteoarthritis.
- Sports injuries, manual labour and the wrong kind of stress for joints and bones lead to changes in the joints, even among very young people.
- Osteoarthritis is understood to be wear and tear of the joints, and, to be more precise, the degeneration of the protective layer of cartilage. Typical forms of osteoarthritis pain are so-called start-up pain, as well as pain on weight bearing and pain at rest.
Start-up pain: This occurs with the first movements, usually after longer periods of rest, and gradually eases off with movement.
Pain on weight bearing: This is triggered by physical activity. Pain at rest: Occurs regularly, also during periods of rest, and increases in intensity as the disease progresses.
- An X-ray can make osteoarthritis visible. The osteoarthritis is seen on an X-ray as a reduction in the size of the joint cavity, a compression of bone close to joints, and through the formation of additional bone material at the edge of the joint.
- With arthroscopy it is possible to examine the inside of the joint. This provides the best possible view and allows for a precise diagnosis of the extent of the damage to cartilage. ■

In the year 2000, the World Health Organisation (WHO) declared the present decade to be the Bone and Joint Decade. For a very good reason: Several hundred million people around the world are suffering long-term pain and physical handicaps due to diseases of and injuries to the locomotor system.

In particular, osteoarthritis is among the most well-known diseases of this kind in Europe.

Sports injuries, extreme sporting activities, heavy manual labour and wrongly stressing the joints and bones lead to changes in the joints. This can lead to stiff fingers, cold feelings and swellings in the extremities. These changes are often accompanied by extreme physical pain. Medical treatment frequently entails strong painkillers. These include morphine, a medicine that reduces sensitivity to pain and loosens cramps. ■

Did you know...?

... that the cartilage in a healthy joint has sliding properties around five times better than those of ice.

... that the joint cartilage in the large joints is only around three to five millimetres thick. It is important to protect it – and the best way to do that is with gelatine. ■



Help for diseases of the bones and joints

In spite of a so-called luxury diet in western cultural groups, many people suffer from a deficiency of amino acids without being aware of it. The amino acids glycine and proline perform an important function for building up fibrous tissues. An insufficient supply of these amino acids can make itself known in the form of painful joints as well as brittle fingernails and hair.

The natural protein gelatine performs an important function in supplying the human body with these amino acids. It differs greatly from other proteins because it contains the amino acids glycine and proline in a concentration that is around 10 to 20 times higher than others. International studies confirm that gelatine has a preventive and regenerative effect on the skeleton and locomotor system – especially bones, cartilage, tendons and ligaments. In examinations with patients who suffered from arthritic complaints of the locomotor system and treated with gelatine, the positive effect of the natural foodstuff on bones and joints was confirmed. A double blind study was carried out, where neither the doctor nor the patient knew whether gelatine or a placebo treat-

ment was given. Among those patients who were treated with gelatine for a period of two months, the pain diminished greatly. Patients who were given the placebo treatment felt no improvement in their complaint (*Source: Therapie Woche, No. 41, September 1991, page 2456 onwards*). Further trials studied how the peptides in gelatine (compounds made up of amino acids that form when the protein molecule is split) reach the target organs in the connective tissue. In these studies, deposits of protein peptides could be detected in the cartilage after as few as six hours. The result indicates that gelatine can have a preventive effect with cartilage wear and explains the positive effect of the gelatine. (*Source: The journal of nutrition, Vol. 129, No. 10, October 1999, page 1891 onwards*). Many doctors and nutritionists are familiar with the positive effect of gelatine. When gelatine is taken at the same time as medicines for rheumatic complaints and painkillers, for example when a patient is suffering from chronic osteoarthritis, the pain-relieving effect can be achieved with around a quarter of the usual daily doses of medicines. The greater pain-relie-



ving effect of this combination leads to greater mobility in the joints and to an improvement in general physical abilities. ■



Gelatine – The Right Choice for a Balanced Diet

The light source of protein

Hardly any other food combines as many positive properties for the diet as gelatine. It is a source of high-quality protein, free of cholesterol, sugar and fat. Gelatine is officially recognised as a foodstuff. It is easy to digest, is completely broken down in the human body, and has scarcely any potential for allergic reactions.

Thanks to its special qualities, this foodstuff occupies a very prominent position in the human diet. Gelatine is used to enrich proteins, reduce carbohydrates and as a carrier for vitamins. Moreover, it can be used to reduce the amount of salt in foods. Many meat and sausage products, as well as ready-to-eat meals, have very high concentrations of

salt. Thanks to the use of gelatine hydrolysate, the proportion of salt can be greatly reduced without the products having to make any compromises in terms of flavour. Gelatine can also play an important role in weight loss. Due to its ability to gel, it can to some extent replace the high fat content in many products. The half-fat and low-fat products such as half-fat margarine, low-fat cheese and yoghurt varieties – all to be found on the shelves as ‘light products’ – remain full of flavour and look tasty thanks to the addition of gelatine. Delicious low-calorie dishes can also be prepared at home with gelatine. They are low in fat, but still have the full flavour. ■

“You are giving your body just the right thing with gelatine”

“Gelatine is also important for nutrition because of its relatively high concentration of the essential amino acid lysine. Lysine is indispensable for the human diet because it is not produced by the body itself. The amino acid assumes an important role in maintaining and forming new tissue, and also in cell and bone growth.

In combination with other sources of protein gelatine also develops its full potential for the metabolism of the muscles and cartilage. Gelatine hydrolysate is used as a supplementary protein in energy bars. In addition to carbohydrates, fibre and vitamins, the bars provide just the right source of protein for snacks between meals. Especially refreshing are gelatine drinks, which can be prepared to suit individual tastes.” ■

URSULA GIRRESSER, DIETICIAN AND OWNER OF ESG NEUSS DIETARY ADVICE

Healthy pleasure

The idea that healthy eating and pleasure are mutually exclusive is still prevalent. Food, even when it is balanced and ‘light’, should taste good but not overload the stomach. It is important for meals to provide enough energy for the whole day. At least one meal a day should contain sufficient carbohydrates, high-quality protein, essential fatty acids,

vitamins, minerals, trace elements and fibre. The wrong eating and drinking habits impair personal performance and reduce the feeling of personal well-being. ■

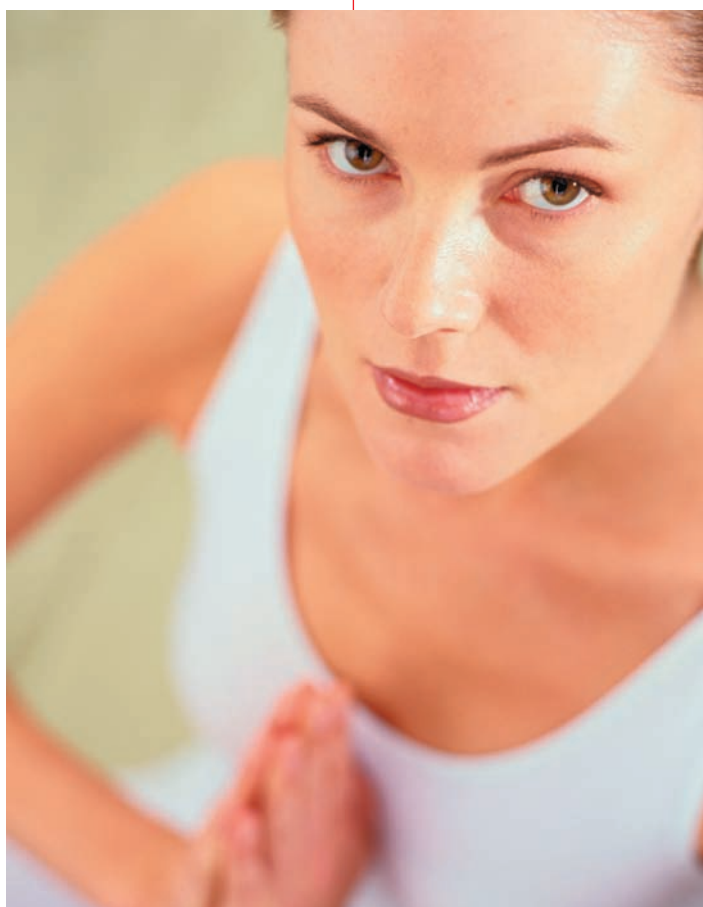
10 grams of gelatine a day

Protein is important for the regeneration of the body. Gelatine is different from other proteins as, in addition to lysine, it contains concentrated forms of the amino acids glycine and proline. This means that gelatine has a positive effect on the bones, cartilage, tendons and ligaments. Reputable dieticians and doctors recommend a dose of 10 g of gelatine a day as an optimum intake.

Scientific studies show that gelatine fortifies hair if taken regularly. Gelatine also

strengthens the connective tissue, thus ensuring firm skin, shiny hair and strong fingernails. It has been proved that hydration of the skin is boosted by consuming gelatine. This has the positive consequence that wrinkles become less deep and the skin looks firmer and fresher. ■

Tip: You can buy gelatine as drinking gelatine or gelatine hydrolysate in pharmacies, health food stores and drug-stores.



Drink yourself fit and healthy “Peking Wellness”

100 ml	fruit tea
100 ml	peppermint tea (or green tea with mint)
50 ml	cherry juice
2 tsp.	passion fruit juice
10 g	drinkable gelatine

Make 100 ml fruit tea and 100 ml peppermint tea (alternatively: green tea with mint) and let both varieties of tea cool in the fridge for a few hours. After cooling mix the two varieties of tea, then add 50 ml cherry juice and 2 tsp. passion fruit juice. This is all rounded off with 10 g of drinking gelatine.

The wellness drink is ready!

This drink is suitable both before and after sporting activities. Or you can enjoy it as a wellness drink, for example after a sauna. The drink contains protein (gelatine for the skin, hair and nails), energy that can be processed quickly, potassium and vitamin C. ■