

## Chapter 1 : Healing Power of Bee Pollen, and Honey

*Healing action of bee pollen* The overall effects of bee pollen are comprehensive, as it appears to activate systemic biological functions rather than focusing on one physiological area. After many years of testing, bee pollen has also been noted as lacking any harmful side effects, and it is easily digestible and suitable for all ages.

Bee Pollen Dr Backhaus T Around half of all the protein in bee pollen is made up of amino acids that can be rapidly absorbed and utilized by the body, and you could probably exist on nothing but bee pollen alone for a very long time, if not indefinitely. Collecting bee pollen is tricky. Obviously it cannot be manufactured in a factory setting, so it must be collected from the bees themselves. The reason why scientists cannot replicate bee pollen in a laboratory, is because we do not yet know everything that it contains. This may sound bizarre in the 21st century, but it is a fact that when bees are removed from their pollen supply and fed synthetic pollen which is believed to be in every way just like their own, the bees die. So there must be some missing magic ingredient that we do not yet have the technology to identify. Every teaspoon is the result of around eight hours hard work by a single bee. Melatonin Dr Backhaus natural " besides offering a full range of vitamins and minerals specialises in Melatonin sleep products. If you would like more information on these products you can use the following links to navigate to those Melatonin websites: It was also taken by pregnant mothers to ensure healthy children with no birth problems. Due to the increasing lack of vitamins and minerals in modern diets, vitamin and mineral supplements are becoming increasingly popular in order to maintain health and well-being, as well as stave off the potentially serious side-effects of vitamin deficiency. It is described by some as a complete food " protein, carbohydrates, vitamins and minerals. In short, it contains everything the body needs in one package. No wonder those bees all work so hard for it. Clinical trials showed that bee pollen plays a role in maintaining healthy digestive function, which may be due in part to its high fiber content, in addition to various vitamins and minerals. Other studies found that when anemic patients were given regular supplements of bee pollen, their hemoglobin levels shot right up. More research is needed into the mechanism behind this. Bee pollen against Cancer Preliminary studies into the possible use of bee pollen as an anti-cancer treatment have found that regularly supplementing with bee pollen can inhibit the growth of tumors in mice, effectively making them grow much more slowly. These findings could play a crucial role in the future to make cancer a largely chronic rather than fatal condition. That is to say, make it much more likely that cancer sufferers would die of old age rather than die of cancer. As an aside, other studies also found that bee pollen reduced the negative side-effects associated with chemotherapy. Though it is little wonder that a food so nutrient rich should have so many benefits. Ironically, given that pollen is a curse for so many allergy sufferers, bee pollen is also an effective treatment for many allergies, including hay fever. Subjects who were given doses of bee pollen not only showed a much reduced incidence of their allergy symptoms, but additionally found that taking bee pollen when their allergies did strike could ease their symptoms in minutes where other medications had failed to do so. Some professional athletes swear by bee pollen as a natural way to boost their training and performance levels, and little wonder with its high levels of so many essential vitamins and minerals. Again, the exact mechanism behind this effect, if it is true, is largely unknown, and may be to do with the missing ingredient that scientists can not yet identify. Bee pollen " Anti-aging and weight loss properties Bee pollen is also growing in popularity as a weight loss supplement, due to its ability to increase metabolic rate and thereby burn calories faster. It was also shown to reduce food cravings in many people, due to the fact that it contains a natural appetite suppressant in the form of phenylalanine. Many modern beauty treatments contain bee pollen, and little wonder since many of the vitamins and minerals that it contains are essential for the maintenance of healthy skin and hair, and have been shown to possess anti-aging properties.

## Chapter 2 : Medicinal Uses for Honey and Pollen -- Chris's Honey Yard

*Bee pollen is a ball of pollen made by young bees when they land on a flower. It's a mixture of pollen, saliva, and nectar or honey. Bees carry these balls back to the hive in sacs on their legs.*

**Reduces Inflammation** The anti-inflammatory activity of bee pollen has been compared to drugs, such as naproxen, analgin, phenylbutazone and indomethacin. The results indicate the bulk mildly suppressed the paw edema while the water extract showed almost no inhibitory activity. The ethanol extract showed potent anti-inflammatory activity, and researchers suggest that it can be used as a dietary supplement and as a functional food. Acts as an Antioxidant Recent studies have revealed that enzymatic hydrolysates from bee pollen are beneficial for patients undergoing various diseases, such as cancer, cardiovascular diseases, diabetes and hypertension. They witnessed high scavenging activities against active oxidative stress. Researchers even suggested that the inhibitory activities of bee pollen were similar to those found in fermented foods, such as natto, miso, cheese and vinegar. **Protects Against Liver Toxicity** One study published in Evidence-Based Complementary and Alternative Medicine found that chestnut bee pollen protects hepatocytes from the oxidative stress and promotes the healing of liver damage caused by toxicity. These findings suggest that bee pollen is a safe alternative to the silibinin in the treatment of liver injuries and can be part of a liver cleanse. **Boosts the Immune System** Bee pollen has antimicrobial and antiviral properties. All of the samples exhibited antimicrobial activity. Staphylococcus aureus was the most sensitive to bee pollen, and candida glabrata was the most resistant. A study conducted in Japan investigated the effect of bee pollen on mast cell activation, which plays a central role in various allergic diseases. The researchers performed in vivo and in vitro experiments and found that bee pollen does have anti-allergic action because of its ability to inhibit the activation of mast cells, which plays an important role in the early and late phases of allergic reactions. Studies have proved that mice and rats fed with pollen showed a higher vitamin C and magnesium content in the thymus, heart muscle and skeletal muscles. They also had a higher hemoglobin content and greater number of red blood cells after pollen consumption. Bee pollen has actually lengthened the life span of experimental animals. An interesting study published in the Journal of Animal Physiology and Animal Nutrition evaluated the effects of bee pollen on 40 New Zealand white rabbits. The rabbits were equally divided among four groups that received the same commercial diet. Each group was given a water solution containing no bee pollen or, or milligrams of bee pollen per kilogram of body weight. The female rabbits were mated with non-treated male rabbits from October to February and May to September. For each season, 80 weaned rabbits originated from the females of the control group, and they were divided into the same four groups to begin treatment. Bee pollen treatment for the female rabbits at milligrams significantly increased body weight, conception rate, milk yield and litter size. It also improved biochemical profiles of blood. The same dose of bee pollen also significantly increased the growth of baby rabbits and their survival rate until weaning. Similar bee pollen benefits were displayed in a study that involved pregnant rats and fetal growth. **Relieves Menopausal Symptoms** A study conducted in Germany found that both honey and bee pollen honey improved menopausal complaints in breast cancer patients on antihormonal treatment. Over two-thirds of the patients who completed the study reported an improvement in their symptoms. Researchers suggest that bee pollen and honey may be offered to women who have failed to respond to other alternatives to cope with postmenopausal symptoms. That makes it one of the most effective natural stress relievers. **Promotes Healing** Bee pollen can be used as a topical ointment to speed up the healing process, especially useful as a home remedy for burn relief. The pollen includes kaempferol, which inhibits the activity of enzymes after a burn and decreases inflammatory reactions and swelling. Pollen helps improve blood circulation in the vessels, and it moistens the skin. The anti-inflammatory and analgesic action of flavonoids in bee pollen helps relieve pain and prevent platelet aggregation. Pollen also helps prevent infection because of its antimicrobial activity, allowing a wound or burn to heal quickly. It stimulates blood supply to all skin cells, helps detoxify the body, reduces the appearance of wrinkles and speeds up the healing process. **Bee Pollen for Weight Loss?** Is bee pollen a metabolism booster? Bee pollen helps regulate hormones, and it possesses metabolic activity – containing

amino acids that help increase your metabolism by dissolving fat cells in the body. It only takes a small amount to receive these nutrients, and an ounce of bee pollen is only about 90 calories. Many manufacturers make bee pollen pills or supplements that claim to help you lose weight fast, but there is little scientific evidence proving this to be true. In fact, the FDA had to recall Zi Xiu Tang bee pollen capsules because they found it contained undeclared sibutramine and phenolphthalein, weight-loss drugs that are no longer used in the U.S. The FDA reported that it received more than 50 adverse event reports associated with the use of tainted bee pollen weight loss products from customers and health care providers. It also has the power to support skin health and speed up the healing process, and for these reasons pollen is a useful supplement. Make sure that the pollen is free from pesticides and that the bee colonies are not treated with chemicals. Bee pollen granules are also available. They can be added to yogurt, cereal and baked goods. Granules can be blended to create ground pollen, which can be added to smoothies or sprinkled over salad. Pollen grains or granules can be added to warm water for two to three hours. They then crack and release their nutritional value. This can also be done with milk, fruit and vegetable juices. You then can drink the liquid or add it to a smoothie to get these awesome bee pollen benefits. A lower dose can be consumed with a bee pollen mixture and is deemed safer. The biggest safety concerns are allergic reactions, which may be an issue for people who are allergic to pollen. There is some concern that bee pollen may stimulate the uterus and threaten pregnancy, which is why women who are pregnant should avoid using pollen or use it with the guidance of a health care provider. Use bee pollen to boost your nutrient intake naturally. You can buy already ground bee pollen or granules. Add it to smoothies, yogurt, cottage cheese, cereal, baked goods and salads. Or let the nutrients infuse in warm water and drink it for a boost of vitamins and minerals.

*Bee pollen is available at many health food stores. You may find bee pollen in other natural dietary supplements, as well as in skin softening products used for baby's diaper rash or eczema.*

Bee pollen is anti-inflammatory, has anti-cancer properties, strengthens the immune system, treats various allergies, and may even help you lose weight. Bee pollen is an amazing source of protein, vitamins and minerals. It also contains many antifungal, antimicrobial, antiviral, and antioxidant properties which provide many healing properties as well as supporting a healthy body. What is Bee Pollen and What it Contains Bees collect pollen from the flowers of plants and then bring it back to the hive where they pack the pollen into honeycomb cells. During the packing process, the pollen is mixed with nectar and saliva from the bees. It is then covered by a thin layer of honey and wax. It is during this process that many of the amazing properties of bee pollen it is sometimes called bee bread start to develop. Each teaspoon of bee pollen contains about 2. Health Benefits of Bee Pollen Anti-inflammatory and antioxidant properties One of the most important properties of bee pollen is its anti-inflammatory and antioxidant properties. Many scientists and doctors now recognize the important role it can play in treating many health problems and diseases. For example, a study of bee pollen found that it is rich in polyphenols plant-based compounds that have antioxidant properties. Polyphenols play an important role in the prevention of diseases such as cancer and cardiovascular diseases. It also contains anti-inflammatory properties which boost the immune system. It showed that bee pollen extract was able to reduce swelling that is caused by inflammation. Anti-cancer properties Because of its antioxidant and anti-inflammatory properties, studies cite bee pollen as an effective way to help fight cancer. Another study published by the journal *Phytotherapy Research* showed that a bee pollen extract was able to help kill off cancer cells in patients with prostate cancer. Relieves Menopausal Symptoms Bee pollen has also been proven to be effective in reducing menopausal symptoms experienced by patients who have been treated for breast cancer. Usually after breast cancer surgery, the antihormonal treatments bring on menopause-like symptoms, and bee pollen was shown to successfully treat symptoms like hot flushes , night sweats, and sleeping difficulties. The Polish Journal of Pathology published research to show that bee pollen extract had a cardioprotective influence in clinical studies. A study published in *Food, Chemical and Toxicology* showed that bee pollen was especially effective against *Staphylococcus aureus* bacteria. Studies showed that when bee pollen was taken with prescribed antidepressants, it was able to improve the feelings of depression in a short space of time. This meant that the medication dose could be reduced and so does the side effects of antidepressants. But, did you know that bee pollen also has many beneficial healing properties for the skin? Bee pollen contains the flavonoid kaempferol, which is an important antioxidant. Research has shown that Kaempferol protects the skin against UV radiation-induced skin cancer<sup>10</sup> and also help repair skin which has been damaged by burns. Bee pollen for allergies One of the most ancient uses of bee pollen as a health remedy is to treat various allergies. Advertisement It has also been reported that Dr. Leo Conway used bee pollen to cure his patients of allergy symptoms using a technique called desensitization. Increases physical performance Bee pollen is one of the ingredients in my ultimate super-food energy smoothie. Because bee pollen contains so many beneficial properties for the body, it is no wonder that it has a wonderful overall effect on how the body performs. There is much anecdotal evidence that many people who use this regularly experience a performance boost. It has also been reported that it has been used by coaches to boost performance in athletes. However, there has been no scientific study to date which confirms this. Recently there have been many bee pollen supplements being sold which claim to help with weight loss. It contains lots of minerals and nutrients. However, the FDA has reported that many bee pollen weight-loss supplements contain undeclared substances which are banned in the US. However, can bee pollen actually help with weight loss? The journal *Nutrients* published a study whereby bee pollen was able to improve muscle mass and metabolism. However a person still needs to look at his or her calorie intake and level of physical activity in order to lose weight. If you want to increase your metabolism, try to consume these ten foods and you also need to be aware of the ten factors that affect your metabolism. It is always best to look for certified organic bee pollen. Bee pollen can be

purchased in many health stores and from reputable online suppliers. They come as granules, powder, capsules or tablets. As Bee pollen should not be processed or heat dried to prevent essential nutrients and enzymes loss, opt to purchase a freeze-dried product. They gradually increase the dose up to 6 teaspoons. As there is no clear dosage published in the medical literature, a health care professional should be consulted before using bee pollen for any medical condition. When using bee pollen granules or powder, start with a small dosage, chew and swallow it or mix it in cereals, yogurt, juices and smoothies. With capsules you can start by opening the capsule and add some of the powder to your yogurt or smoothie, and slowly increase your dose until you can take a full capsule. Bee Pollen – Precautions The main risk of bee pollen is for those people who have allergies to bees, bee stings, and bee products. If you have a bee allergy, then you should not take bee pollen. It is not recommended that pregnant or breastfeeding women take bee pollen because not enough is known how it can affect infants and there is a concern that it can stimulate the uterus during pregnancy. Read my other related articles:

### Chapter 4 : Bee Pollen medicinal properties. Buy Bulk Bee Pollen.

*The many health benefits associated with honey have been well documented and I've already written an article on why Manuka honey is good for you. But many people don't know about the health benefits of bee pollen. Bee pollen is anti-inflammatory, has anti-cancer properties, strengthens the.*

Prevent middle ear infections 2. Heals Burns A study from the Journal of Alternative and Complementary Medicine found that propolis may promote the healing of minor burns. Study results showed propolis was just as effective as the drug in treating second-degree burns. Prevents Dental Cavities Greek and Roman physicians used propolis as mouth disinfectant. Modern studies show it may be effective in the treatment of periodontitis and gingivitis. Many studies have also found that extracts from bee glue limit bacterial plaque and reduce tooth caries. Treats Parasites Preliminary trials show propolis may eliminate parasites. Wart Removal In a single-blind, randomized, 3-month trial, patients with different types of warts received oral propolis, echinacea, or a placebo. The results were reported in the International Journal of Dermatology. The results were significantly better than those associated with echinacea or placebo. Beats Drug for Genital Herpes Propolis is more effective than a common drug for treating genital herpes according to a study published in Phytomedicine. The patients applied the ointment four times a day. Only 14 of 30 in the drug group, and 12 of 30 in the placebo group were cured. Like honey, the composition and health benefits of propolis will vary depending on the trees and flowers and the location where it is produced. You can find propolis in its raw form directly from a local beekeeper. Propolis is also available without the honey. But extracts or tinctures of propolis are more convenient to use. They are popular for boosting the immune system, and for their anti-inflammatory, antioxidant and anti-microbial properties. You can also find propolis formulations for colds and flu-like symptoms, wound healing, acne, cold sores, genital herpes, and dermatitis. They are available as creams, ointments, lotions, toothpastes, and mouth washes. Oral propolis formulations can be found as pastes, lozenges, liquid extracts, tablets, and capsules. However, if you have an allergy to honey or bees, you may also have a reaction to products containing propolis. Are you a research buff or health professional? Investigation of the influence of ethanol extract of propolis EEP on dental pulp regeneration. Experimental observation on the influence of ethanol extract of propolis EEP on the regeneration of bone tissue. Special emphasis will be placed on environmental health. This article is not intended to provide medical advice, diagnosis or treatment. Views expressed here do not necessarily reflect those of GreenMedInfo or its staff. Internal Site Commenting is limited to members. Disqus commenting is available to everyone.

## Chapter 5 : Bee Pollen - Miraculous Healing Properties - A Complete Food

*Because of bee pollen's nutritional and tonic properties, it improves blood supply to nervous tissue, boosting mental capacity and strengthening the nervous system that may be weakened by stress. That makes it one of the most effective natural stress relievers.*

The latter category includes vitamins, minerals, antibiotics and antioxidants. In addition, bee pollen harvested during springtime has a significantly different amino acid composition than pollen collected during the summer 2. Summary Bee pollen contains over biological substances, including protein, carbs, fats, vitamins, minerals, enzymes and antioxidants. The exact nutrient composition depends on the plant source and season collected. High Antioxidant Content Protects From Free Radicals and Chronic Diseases Bee pollen is loaded with a wide variety of antioxidants , among them flavonoids, carotenoids, quercetin, kaempferol and glutathione 5. Antioxidants protect your body against potentially harmful molecules called free radicals. Damage by free radicals is linked to chronic diseases such as cancer and type 2 diabetes 6. Test-tube, animal and some human studies have shown that bee pollen antioxidants can reduce chronic inflammation, eliminate harmful bacteria, fight infections and combat the growth and spread of tumors 7. Unless a plant source is specifically stated on the label, it can be difficult to determine where your bee pollen came from. Summary Bee pollen contains a wide variety of antioxidants, which may protect your cells from damage caused by free radicals that are linked to chronic diseases, including cancer and type 2 diabetes. Both high blood lipids and high blood cholesterol are linked to an increased risk of heart disease. Interestingly, bee pollen may lower these risk factors. In people with nearsightedness caused by clogged arteries, bee pollen supplements lowered blood cholesterol levels, which increased their field of vision 7. Additionally, antioxidants in bee pollen may protect lipids from oxidizing. When lipids oxidize they can clump together, restricting blood vessels and raising your heart disease risk Your liver is a vital organ that breaks down and removes toxins from your blood. Animal studies have found that bee pollen may enhance its detoxifying abilities. Other animal studies show that bee pollen antioxidants safeguard the liver against damage from several toxic substances, including drug overdoses. Bee pollen promotes liver healing as well 5 , 13 , More human studies are needed to establish health recommendations. Summary Animal studies suggest that bee pollen may boost liver function and protect this organ from harmful substances. However, more high-quality human studies are needed. Bee pollen has been used traditionally to reduce inflammation and swelling. In fact, its anti-inflammatory effects have been compared to several nonsteroidal anti-inflammatory drugs, such as phenylbutazone, indomethacin, analgin and naproxen 7. Bee pollen packs several compounds that can reduce inflammation and swelling, including the antioxidant quercetin, which lowers the production of inflammatory omega-6 fatty acids, such as arachidonic acid Summary According to animal and test-tube studies, bee pollen antioxidants may have powerful anti-inflammatory properties. Bee pollen may boost your immune system, helping you avoid illnesses and unwanted reactions. For one, research has shown that it may reduce the severity and onset of allergies. In one study, bee pollen was shown to significantly reduce the activation of mast cells. Mast cells, when activated, release chemicals that trigger an allergic reaction Also, several test-tube studies have confirmed that bee pollen has strong antimicrobial properties. Bee pollen extract was found to kill potentially harmful bacteria such as E. Summary Animal and test-tube studies show that bee pollen antioxidants may reduce the severity and onset of allergies and kill several harmful bacteria. May Aid Wound Healing and Prevent Infections Bee pollen has anti-inflammatory and antioxidant properties, which may aid your body in wound healing. For instance, animal research found that bee pollen extract was similarly effective at treating burn wounds as silver sulfadiazine, a gold standard in burn treatment, and caused far fewer side effects Another animal study showed that applying a balm containing bee pollen onto a burn significantly accelerated healing over standard medicines Summary Bee pollen has anti-inflammatory and antioxidant properties that may promote wound healing. Its antimicrobial properties may also prevent wound infections. May Have Anticancer Properties Bee pollen may have applications for treating and preventing cancers , which occur when cells proliferate abnormally. Test-tube studies have found bee pollen extracts to inhibit tumor growth

and stimulate apoptosis – the programmed death of cells – in prostate, colon and leukemic cancers 23 , Bee pollen from *Cistus incanus* L. However, more human-based research is needed. Summary Test-tube studies suggest that bee pollen lowers your risk of several cancers, though more human studies are necessary. Menopause, which marks the cessation of menstruation in women, is often accompanied by uncomfortable symptoms such as hot flushes, night sweats, mood changes and sleep disturbances. Studies show that bee pollen may alleviate several menopausal symptoms. These women indicated other health improvements as well, such as better sleep, reduced irritability, less joint pain and improved mood and energy. Moreover, a three-month study showed that women taking bee pollen supplements experienced significantly fewer menopausal symptoms. Summary Studies have shown that bee pollen may alleviate several menopausal discomforts, including hot flashes. It may also improve cholesterol levels. This uptick is likely due to the fact that pollen contains vitamin C and bioflavonoids, which boost iron absorption. Additionally, healthy rats fed pollen absorbed more calcium and phosphorus from their diet. Pollen contains high-quality proteins and amino acids that may aid such absorption. Other animal studies have demonstrated that bee pollen may improve muscle growth, speed up the metabolism and promote longevity 3 , Summary Animal studies have shown that bee pollen may enhance the absorption and utilization of nutrients like iron, calcium and phosphorus. It may also speed up metabolism and promote longevity, though human research is needed to confirm these benefits. Bee pollen comes in granule or supplement form and is safe for most people. You can purchase it at health stores or from your local beekeeper. The granules can be added to your favorite foods such as breakfast or smoothies. However, people with pollen or bee sting allergies should avoid pollen products, as they may cause symptoms such as itching, swelling, shortness of breath or anaphylaxis. These products may also interact negatively with blood thinners, such as warfarin 33 , Summary Bee pollen supplements are generally safe to consume. However, people with pollen or bee sting allergies, pregnant or lactating women and people taking blood thinners, such as warfarin, should avoid it. The Bottom Line Bee pollen contains many vitamins, minerals and antioxidants, making it incredibly healthy. Studies have linked bee pollen and its compounds to health benefits such as decreased inflammation, as well as improved immunity, menopausal symptoms and wound healing. However, most of the evidence surrounding bee pollen and its components stems from test-tube and animal studies. More human research is needed to clarify its health benefits. All told, bee pollen is a great addition to your diet and can be easily purchased from health stores or your local beekeeper.

**Chapter 6 : Bee Pollen: Chemical Composition and Therapeutic Application**

*Bee pollen is a natural substance that contains trace amounts of minerals and vitamins. Widely available in dietary supplement form, bee pollen is also very high in protein and carbohydrates.*

This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. This article has been cited by other articles in PMC. Abstract Bee pollen is a valuable apitherapeutic product greatly appreciated by the natural medicine because of its potential medical and nutritional applications. It demonstrates a series of actions such as antifungal, antimicrobial, antiviral, anti-inflammatory, hepatoprotective, anticancer immunostimulating, and local analgesic. Its radical scavenging potential has also been reported. Beneficial properties of bee pollen and the validity for their therapeutic use in various pathological condition have been discussed in this study and with the currently known mechanisms, by which bee pollen modulates burn wound healing process. Introduction Apitherapeutics are natural agents which contain groups of chemical compounds with approved action and range of activity. The chemical composition of one of the most known apitherapeutics, bee pollen, depends strongly on the plant source and geographic origin, together with other factors such as climatic conditions, soil type, and bees race and activities [ 1 , 2 ]. In the composition of the bee pollen, there are about substances including amino acids, lipids triglycerides, phospholipids , vitamins, macro- and micronutrients, and flavonoids [ 1 , 2 ]. Bee pollen is used in the apitherapeutic treatment as it demonstrates a series of actions such as antifungal, antimicrobial, antiviral, anti-inflammatory, immunostimulating, and local analgesic and also facilitates the granulation process of the burn wound healing [ 3 , 4 ]. Bee pollen is a raw material from which bees produce bee bread. They collect pollen from plant anthers, mix it with a small dose of the secretion from salivary glands or nectar, and place it in specific baskets corbiculae which are situated on the tibia of their hind legs. These are called pollen loads. The field bees collect and transport the bee pollen to the hive [ 5 , 6 ]. In the hive, the collected pollen, dampened with saliva and fragmented by flightless bees, is packed in honeycomb cells. Next, the surface of the collected pollen is covered with a thin layer of honey and wax. The substance which has been created is bee bread which undergoes anaerobic fermentation and is preserved thanks to the arising lactic acid. Bee bread constitutes the basic protein source for the bee colony. Moreover, it is also the source of nutritional and mineral substances for royal jelly produced by worker bees [ 5 , 6 ]. The grain dust is encompassed by a double-layered cell wall. The internal cell wall is called intine, while the external one is called exine. The exine defines itself by a strong resistance to physicochemical factors. Pollen grains, depending of the plant species, differ in shape, color, size, and weight. The grain shapes are diverse: Their weight is equal to a dozen or several dozens of micrograms. The majority of pollens consist of single grains which are sometimes joined with two or more grains [ 7 ]. The color of the pollen is varied ranging from bright yellow to black. The pollen basket, which is brought to the hive, usually consists of the pollen from one plant. However, it sometimes happens that the bees collect pollen from many different plant species. The group of plants from which only pollen is collected includes poppy, corn, and lupine, while from other melliferous plants bees collect both nectar and pollen. Bees do not collect pollen from grass. However, they may occasionally collect fungal spores from moldy plants [ 8 , 9 ]. Chemical Composition of Pollen Pollen is quite a varied plant product rich in biologically active substances. In the group of basic chemical substances, there are proteins, amino acids, carbohydrates, lipids and fatty acids, phenolic compounds, enzymes, and coenzymes as well as vitamins and bioelements [ 10 , 11 ]. These protein elements are life essential and the organism cannot synthesize them by itself. Moreover, in the pollen, there are significant amounts of nucleic acids, especially ribonucleic one. This group includes flavonoids, leukotrienes, catechins, and phenolic acids. Pollen is characterized by a quite significant content of triterpene bonds. The most frequent compounds are oleanolic acids, 3-ursolic acid, and betulin alcohol [ 12 , 13 ]. Moreover, vitamins and bioelements also belong to valuable substances. Special devices, pollen traps, are used to collect pollen baskets. The general rule of their functioning is to take the part of the pollen basket from field bees returning to the hive. Therefore, there are different dividers on the

returning route of bees. The bees must force their way through and, consequently, lose the part of the pollen basket which falls into special containers. There are different types of pollen traps: Their size is about 5 mm. The loss of pollen mobilizes the bees. It increases both the number of field bees and the number of flights. The amount of pollen collected from one colony during one day amounts to 50 g. According to National Data, one bee colony gives 1 to 7 kg of pollen a year [ 12 , 13 ]. Bee bread is collected by scratching it from the combs with a special fork and then attenuated with warm honey in the ratio of 1: After leaving the mixture for several days, bee bread falls down on the bottom of the container as it is heavy and separates itself from honey. After putting it into jars, the product is closed tightly and stored in a cool and dark place [ 18 ].

Activity and Biological Properties of Pollen Experimental pharmacological studies, conducted on rats and rabbits, showed that pollen has an hypolipidemic activity decreasing the content of plasma total lipids and triacylglycerols. Additionally, the decrease of lipid concentration in the serum correlated with the content of such hormones as insulin, testosterone, and thyroxine, which are responsible for a higher lipid metabolism [ 19 , 20 ]. Clinical studies confirmed the hypolipidemic activity of pollen. It was also successfully applied in hyperlipidemia and atherosclerosis. In patients suffering from arteriosclerosis with a significant myopia and partial optic atrophy, pollen lowered the level of cholesterol in blood serum and increased the field of view and stabilized the visual acuity [ 24 ]. Pollen and its extracts, fat-soluble ones in particular, are successfully applied in postinfarction conditions as well as in systemic circulation disorders and arterial hypertension. Moreover, small doses of pollen given to older people allow both the inhibition of the atherosclerotic changes of blood vessels and improvement of cerebral blood flow [ 25 ]. The hypoglycemic activity of pollen is mainly ascribed to the presence of unsaturated fatty acids, phospholipids, and phytosterols. Furthermore, a decreased ability of platelet aggregation and increased fibrinolytic system activity was confirmed in people who take pollen. It indicates the antiatherosclerotic effect which protects from heart diseases and brain strokes [ 26 ].

The wide-ranging and well-documented studies on animals also unambiguously showed detoxifying action of pollen. The rats were poisoned with organic solvents such as carbon tetrachloride and trichlorethylene, as well as ethionine and ammonium fluoride, both causing a deep damage of liver cells, and galactosamine, which imitate the changes of viral hepatitis, ethanol, and allyl alcohol, which induce steatosis and cirrhosis, and with drugs: Under their influence, very high levels of enzymes such as alanine and aspartate transaminase, acid phosphatase, and bilirubin were assayed [ 27 ]. Pollen lowered the level of these substances in the blood serum even to physiological values, which proves the therapeutic properties of this product in reference to liver tissue. However, when it was administered with toxic substances, it protected liver cells from their harmful effect, which indicates, in turn, its ability to prevent toxication. In the detoxifying process, an important role is played by polyphenols, mainly flavonoids and phenolic acids [ 28 – 31 ]. The detoxifying activity of pollen and bee bread in phenomena such as occupational diseases, heavy metal contamination, industrial gases and dusts, and drugs e. Pollen is also characterized by a high anti-inflammatory activity. Its magnitude is compared to such nonsteroidal anti-inflammatory drugs as naproxen, analgin, phenylbutazone, or indomethacin [ 33 ]. The mechanism of anti-inflammatory effect is about inhibiting the activity of cyclooxygenase and lipoxygenase, the enzymes responsible for turning arachidonic acid into such toxic compounds as prostaglandin and leukotrienes, inducing acute and chronic inflammatory conditions in tissues. The elements responsible for such activity are flavonoids and phenolic acids as well as fatty acids and phytosterols [ 34 ]. Pollen is recommended in acute and chronic inflammatory conditions, initial degenerative conditions, and cholestatic liver diseases as well as in toxic and posttraumatic damages of this organ [ 33 , 34 ]. Bee pollen has also been proposed as a valuable dietary supplement. Animal feeding experiments with pollen have also been carried out. It was proven that mice and rats, fed with pollen, showed a higher vitamin C and magnesium content in thymus, heart muscle, and skeletal muscles as well as a higher hemoglobin content and greater number of red blood cells when compared to animals given standard feed. Moreover, pollen also lengthened the life span of experimental animals [ 35 – 37 ]. In starved animals and those being on a nonvitamin diet, pollen caused faster weight gains than a normal diet. The components playing the vital role in the process are dispensable amino acids, vitamins, and bioelements [ 36 , 38 ]. Moreover, it is recommended to administer pollen in the recovery period, after surgeries, and to people working hard physically and

mentally [ 36 , 38 ]. Furthermore, the adaptogenic properties of pollen, which are based on increasing the resistance to harmful physical, chemical, and biological factors, were also indicated: It has been also shown that pollen ethanol extracts have quite a strong antibiotic activity that is still being effective on the pathogen for human Gram-positive bacteria, for example, *Staphylococcus aureus*, and Gram-negative bacteria, including *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and on fungi such as *Candida albicans*. The responsibility for this activity lies in flavonoids and phenolic acids [ 40 , 41 ]. Recent research indicates that pollen has an antiallergic activity. It protects mast cells of the organisms from degranulation that is from releasing histamine which is the exponent of allergic reactions. The literary data point out that pollen seals capillaries, removes swellings of cardiovascular and renal origin, and has a spasmolytic effect on smooth muscles especially in the range of bladder and urethra [ 43 ]. The beneficial effect of pollen in inflammatory conditions of prostate gland is known for a long time. Clinicians confirm that, in nonbacterial prostate inflammations, pollen improves the condition of patients effectively removing the pain. The positive effect was found in benign prostatic hyperplasia cases. In the initial stage of the prostate cancer, the improvement was also found. However, when pollen was administered alongside chemotherapeutic agents, the number of people who felt a significant therapeutic effect significantly increased [ 44 – 47 ]. Pollen, administered alongside antidepressants, enables the lowering of their doses and improves the overall condition in a short period of time. Due to this fact, there are fewer cases of drug addictions or occurrences of side effects. Owing to its nutritional and tonic properties as well as improvement of blood supply to nervous tissue, pollen boosts mental capacity and strengthens the nervous system weakened by stress or overworking [ 48 – 50 ]. Therefore, pollen is effective in treating physical and mental overtiredness, asthenia, and apathy. Particularly good effects are gained in depressions caused by decreased life energy, especially in older people. Long-term use of pollen, even in small doses, enables gradual mood improvement, restores the desire to live, and strengthens the organism physically [ 50 ].

## Chapter 7 : Top 8 Bee Pollen Benefits- Dr. Axe

*According to holistic health expert Dr. Joseph Mercola, bee pollen has antibiotic-type properties that can help protect the body from contracting viruses. It's also rich in antioxidants that protect the cells from the damaging oxidation of free radicals.*

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propolis has been serving honey bees and humans for centuries. While the honeybees use it to keep their hives hole and invader-free, humans use bee propolis both internally and externally for medicinal purposes. Science is really showing just how valuable propolis is when it comes to our health. Top 8 Bee Pollen Benefits No. [Click here to learn more about the webinar.](#)

## Chapter 8 : Bee Pollen Benefits & Side Effects – Health Guide HQ

*And this "bee glue" is a powerful health balm. In fact, studies show it has anti-cancer properties. Dr. Seema Patel of the Bioinformatics and Medical Informatics Research Center, San Diego State University conducted a comprehensive review of the literature on propolis and cancer.*

You will discover the reason why after reading their health benefits highlighted in this article. The supplement is a powerful natural energy and regulates body functions, as part of the many benefits it offers to health. What is Bee Pollen? It contains as many as 96 different nutrients and also includes other beneficial enzymes, poly unsaturated fatty acids, folic acid, vitamin C, carotene, trace elements such as iron, manganese, calcium and potassium and 22 beneficial amino acids. This amazing health supplement also contains anti-oxidants that help to reduce the likelihood of cancer. It is straight from Mother Nature and is not cooked up in a lab. The ancient Chinese, Egyptians, Romans and Greeks and countless other societies around the globe utilized valuable Bee Pollen in their traditional medicines. Time is often the best testimony and the ancients also used it to boost their immune systems and to improve energy and endurance during harsh physical activities. This was important in a world lacking in technology where manual labor was the only course of action possible. What Are Benefits and Side Effects? The properties of such pollen make this product secreted by plants an excellent complement to the daily diet. The consumption is of significant benefit to you, which is quickly noticeable. Between the effects include increased resistance to fatigue and enhanced intellectual ability, besides being beneficial for many diseases. It is the product of secretion of the male organs of plants, whose function is to fertilize the female organs. Therefore, in composition, are indispensable for life. Among them, it emphasizes the high protein, vitamins and hormones that promote growth. Furthermore, the pollen has carbohydrates, lipid complexes, diastase and trace elements. The benefits are derived from its cleansing, energizing and revitalizing properties. It stimulates the appetite, increases work capacity and low blood pressure. The effects of pollen consumption begin to be noticeable a few days after you start use, increasing the fatigue strength and intellectual capacity. It is only contraindicated in people with allergies. Bee Pollen dose recommended for adults is one tablespoon per day, which you mix with meals, if you dislike the taste. Health Benefits as List Below: Bone Health It is great for those who have brittle bones. This is because it is very high in amino acids. It also is high in various vitamins and minerals, such as calcium and lysine, as well as phosphorus. Lysine has the ability to absorb calcium, which is why this product is great for our bones. This is great for children and adults alike, and it can help with the formation of bone callus that is associated with fractures. It is also beneficial in preventing osteoporosis. Brain Health Again due to high amounts of amino acids, we here think this supplement is great for memory and brain functioning. It can help to make you much more concentrated and focused, and it can help you have increased amounts of concentration as well. This is great for anyone who has ADHD. Bee pollen is very beneficial for those who are older, children and students who are preparing for exams as well. It can also help to lower the negative effects of stress, anger, jealousy, and envy. Energy It dose work well if you are lacking energy in your body. Energy is important each and every day as it keeps you going. It can help with intellectual tiredness and it contains the essential proteins, minerals, and vitamins that we need in order to keep our energy levels high. It is truly great for patients who are recovering from various types of health ailments as well. It is great and safe for everyone and anyone! Anemia Take pollen is good for anemia as it increases red blood cell production, it also helps healing by what is indicated in case of ulcers. It is also ideal for restoring vitality, which is why we recommend use on weak, convalescent, stressed, elderly and pregnant women. In children, the pollen promotes growth. Others Among other medicinal properties, the pollen is useful for preventing prostatitis. In addition, hypertension, varicose veins, intestinal and liver problems, asthma, eczema, diabetes, eye disorders, anxiety, irritability and nervousness, among other conditions, also benefit from the consumption of pollen. Headache This is common when taking a new supplement as your body is not used to having this in the body. If you develop a side effect, you can slowly take it until you feel no more headaches come on. Runny Nose This is extremely common with this product as the smell could cause problems in the ear, nose and throat area. Again, lessen the amount of this supplement

you are taking if you develop a runny nose. Allergic Reaction Although rare, this could indeed happen. If you are allergic to bees, honey, or have an allergic reaction to an insect sting, you might be allergic to Bee Pollen as well. You need to make sure you do not take in this supplement if you know you are allergic. If you develop symptoms such as itchy throat or hay fever, discontinue the use of this supplement all together. Tearing Eyes This could also be due to an allergic reaction, but a minor side effect of Bee Pollen could be tearing and wet eyes. Do not worry though because this is common! Rash Rash is a bit less common, so if you develop a rash when taking this product you should discontinue use and see your doctor as soon as you can to get it checked out.

### Chapter 9 : Healing Benefits Of Bee Pollen – Healing the Body

*Bee pollen is a valuable apitherapeutic product greatly appreciated by the natural medicine because of its potential medical and nutritional applications. It demonstrates a series of actions such as antifungal, antimicrobial, antiviral, anti-inflammatory, hepatoprotective, anticancer immunostimulating, and local analgesic.*