

As per an estimate, round 1.5% of people in the world are affected by Vitiligo.

Vitiligo is a distressing skin condition marked by gradual loss of melanocytes, the cells responsible for producing melanin pigment in skin layers which results in irregular white patches.

The only physical discomfort associated with Vitiligo is the intolerance to sunlight, but it applies only when a large area of skin is exposed directly to sunlight. Vitiligo is an otherwise benign skin condition that causes no physical harm.

However, Vitiligo causes great psychological stress and embarrassment to the patient which can be more painful than any physical pain. The condition thus, besides being a medical problem, also becomes a social stigma

Vitiligo can occur at any age, in either sex and on any part of the body. It is, however, more common in women than men. The most commonly affected areas are the hands, neck, back and wrist in that order.

Symptoms of vitiligo:

Vitiligo usually starts with a small white spot and later develops into patches. These patches are pale in the beginning but became darker as time passes due increase in loss of melanin. As the spots enlarge, they merge into one another and, in the course of time, form a broad patch. In some cases, most of the skin of the body can be covered with white patches.

The spread of Vitiligo is usually slow and progressive. The spots generally tend to grow symmetrically on both the sides of the body however in some cases, vitiligo spreads randomly all over the body.

Vitiligo can vary in size, shape, intensity of the loss of color and in the profile of their distribution. Some times Vitiligo becomes a chronic skin condition while in other cases it may even regress on its own.

This skin condition requires treatment by a dermatologist.

Causes of vitiligo:

The exact causes for destruction of melanocytes which results in vitiligo is unknown.

Many false beliefs are prevalent about the reason for vitiligo. For one, it is not caused by eating fish and drinking milk at the same time. Similarly attributing vitiligo to eating other combinations of food such as pumpkin and milk, onion and milk etc. are incorrect.

Vitiligo is also not caused by any germs. Part of the possible reason for Vitiligo includes:

Autoimmune disorder: Evidences strongly associate Vitiligo with autoimmune component. People with vitiligo develop antibodies that directly destroy melanocytes. Furthermore, vitiligo is often associated with other autoimmune diseases such as thyroid disorders, suggesting the existence of common mechanisms.

Hereditary factors: Genes that play a role in the immune response are one of the established causative factor for vitiligo. Round 30

percent of patients have a hereditary history of vitiligo.

Accumulation of toxic radicals: Several studies suggest that, melanocytes are destroyed in those people whose body accumulate many toxic radicals. This abnormal accumulation of radicals result in destruction of melanocytes.

Nervous secretion: Researchers have also collected evidences that destruction on melanocytes could be related to the release of toxic chemicals from nerve endings in the affected areas.

Nutritional deficiencies: Many naturopaths believe that vitiligo may be caused by nutritional deficiencies caused by a intake of faulty diet comprising of denatured foods like white flour, white sugar and tinned products which are low in nutrients.

Other triggers: Researchers also suggest other external triggers like injury to skin, sunburn, mental distress and physical Illness as possible causes of vitiligo.

Is Vitiligo contagious?

Vitiligo is not contagious. It does not spread by contact, food or otherwise. It is also not a precancerous condition.

Best Natural Home Remedies for Vitiligo treatment

Vitiligo is characterized by an overly sensitive skin. Any remedies suggested here must be tried on small patches to test for possible skin allergies and infection. A full-fledged application must only be tried after you have tested these against your skin allergies and reactions.

- **01. Say no to stress**: Stress (physical or emotional) has been found to be the prime trigger of genealogical disturbances that result in and promote the growth of vitiligo. Indulge in creative pursuits to stay clear of emotional stress. Lifestyle changes to incorporate practices like meditation, yoga and other relaxation exercises is the best thing you can do arrest the growth of vitiligo.
- **02. Psoralea seeds**: Psoralea. seeds soaked in the juice of ginger or tamarind seeds (to be replaced daily) for three days is perhaps the most time tested and best home remedy for vitiligo. Psoralea seeds essentially replicate the effect of the sun tanning and is effective in restoration of skin color. After three days of soaking, the seeds should be rubbed with hands to remove their shell and should be dried in shade before being grounded into a powder. One gram of this powder should be taken daily with fresh milk for 40 days without interruption. The ground seeds should also be applied on the affected areas.

Psorela seeds are also used as an ingredient in ultraviolet phototherapy, the most common treatment of vitiligo.

Preferably, Psoralen should be used only under experts guidance as

they might otherwise have some side effects.

- **03. Radish Seeds**: Radish seeds are very valuable in treating vitiligo. Approximately 40 grams of finely pounded radish seeds should be soaked overnight in a little amount of vinegar. The paste should be applied on white patches and allowed to dry for around two hours or until it dries and comes out as scales. For even better results, a little white arsenic can also be added and allowed to soak overnight in the paste.
- **04. Basil leaves and lime juice**: Basil leaves has vital anti-viral and anti-aging attributes which are beneficial for the skin. Basil leaves paste mixed with lime juice is also known to promote melanin production and is an effective home remedy for vitiligo. An extract of basil leaves mixed with lime juice should be applied up to thrice a day for up to 6 months for best results.
- **05. Red clay**: Red clay found on river beds is rich in copper content which helps in re-pigmentation of the skin. The clay should be mixed in ginger juice and applied over the white spots once a day. While red clay aids in re-pigmentation, ginger juice serves to increase blood flow to the affected spots.
- **06. Copper treated water**: Drinking water stored overnight in copper utensils is effective in promotes production of melanin by melanocytes and is effective in toning the skin of a vitiligo affected person. Copper treated water should be taken instead of normal water by sufferers of Vitiligo.
- **07. Turmeric:** Turmeric mixed with mustard oil is also a beneficial natural home cure for vitiligo. About 500 gms of turmeric should be hammered and soaked in eight liters of water at night. The mixture

should be boiled in the morning till it reduces to 1/8th the original volume. The resultant liquid should then be strained and mixed with 500 gms of mustard oil. This mixture should then be heated until only oil is left. It should be applied on white patches every morning and evening for treating vitiligo.

- **08. Babchi seeds**: Babchi seeds combined with tamarind powder is one of the best home remedies for vitiligo. Equal amount of both the seeds should be soaked in water for three to four days. They should then be shelled and dried in the shade before being made into a paste. The resultant paste should be applied to the white patches for a week. Some skins are sensitive to babchi seeds. If the application of paste causes itching or the white spots become red this treatment should be discontinued.
- **09. Khellin (aka: Ammi visnaga)**. Khel is a Mediterranean plant with vital attributes that make it a beneficial home remedy for Vitiligo. Extract of Khel fruit, is chemically similar to the photosensitizing psoralen which is used for PUVA phototherapy. Many researches have established that a topical application and oral intake of Khellin extract had an efficacy comparable to that of psoralen under UV light therapy. Its dosage varies depending on the case, and treatment and should be used under a dermatologist's guidance.
- **10. Ginkgo biloba**: Extract of ginkgo biloba given in a dose of 40mg, thrice a day has been found effective in arresting the growth of progressive vitiligo. Re-pigmentation has also been observed in some of the cases. Although promising, the results have not yet been confirmed by larger trials.
- **11. Goose foot**: Goose foot taken as a vegetable twice daily, morning and evening is very effective for treating leucoderma. The juice of

the leaves of goose foot can also be used to apply on the patches.

- **12. Neem**: Drinking one glass of neem juice daily is very beneficial for treating leucoderma.
- **13. Pomegranate leaves**: Take a handful of pomegranate leaves and powder them fine. Take about 8grams of this powder, twice daily, with a glass of water.
- **14. Black gram**: Powder black gram and add water to make a paste. Apply this paste on the affected areas and wash off after it dries. Do this for about four to five months for better results.
- **15. Ginger leaves**: Take ginger leaves and powder it with poultice and apply this paste on the white patches.
- **16. Figs**: Eat a lot of figs in the raw form , as it purifies the blood and improves its circulation. Roast the figs and powder them and add water to it , to make a paste and apply this paste on the white patches in the skin.
- **17. Walnuts**: Eat walnuts daily for better results. Walnuts can also be powdered and add water to it and make a paste and apply it over the affected parts of the skin.
- **18. Indian lilac leaves**: Make juice of Indian lilac leaves and drink this daily twice for better results. Since this juice has essential minerals and compounds to effectively treat this condition ,it is a very good home cure for leucoderma.
- **19. Leadwort**: Make a paste of leadwort root and water and apply over the white patches .

Dietary recommendation for treatment of Vitiligo

If vitiligo is caused by nutritional deficiency, regulation of diet becomes of prime importance. The dietary regimen should include food rich in:

- **20. Vitamin B9 and B12**: As per a study conducted on a larger number of vitiligo sufferers, it was found that 80% had a nutritional deficiency of Vitamin B9(folic acid) and vitamin B12. Cases of total repigmentation after 3 to 6 months of supplementation of these vitamins have also been recorded. Sufferers of Vitiligo may thus stand in good stead by adding food naturally rich in vitamin B9(yeast extract, liver, dried herbs, sunflower seed) and Vitamin B12 (liver, milk, cheese, beef, chicken, mutton, pork, fish, ham, whole egg. and yoghurt into their diet.
- **21. Copper**: Copper is an vital mineral required by the body. Its benefits are immense However for a vitiligo patient; two of its properties are of vital importance –
- Copper helps eliminate free radicals that destroy melanocytes
- Copper helps produce melanin

A moderate intake of food rich in copper has been found to be very effective home remedy for vitiligo. Food rich in copper include liver, oysters, cocoa powder, chocolates, nuts, calamari and lobsters, dried tomatoes, pumpkin seeds, watermelon seed, ground ginger, chill powder and soybean sprouts.

Note: Excess consumption of copper lead to diarrhea, senility,

cramps, vomiting, hypertension, depression, schizophrenia and insomnia.

Foods to Avoid

- Avoid coffee, tea, alcohol beverages and condiments
- Avoid highly seasoned dishes.

General course of treatment for Vitiligo

If the spots are small it can be covered with makeup or other cosmetic camouflage techniques.

Dermatologist generally prescribe corticosteroid cream for Vitiligo but the advantage is usually temporary and not without side effects.

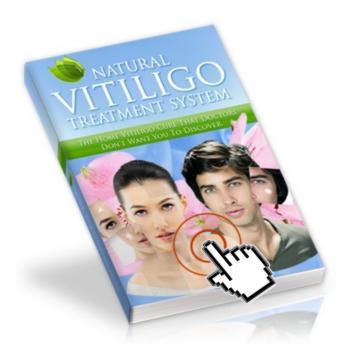
Ultraviolet phototherapy in combination with psoralen therapy is effective and popular in treatment of Vitiligo.

Surgical transplantation of melanocytes is a promising new development in the treatment of vitiligo, but it is still evolving besides being very expensive.

Herbal remedies using psoralea and related herbs like celery and wild herbs are one of the most popular modes of treating vitiligo as they offer a more effective, tolerable and economic alternative to corticosteroid medication.



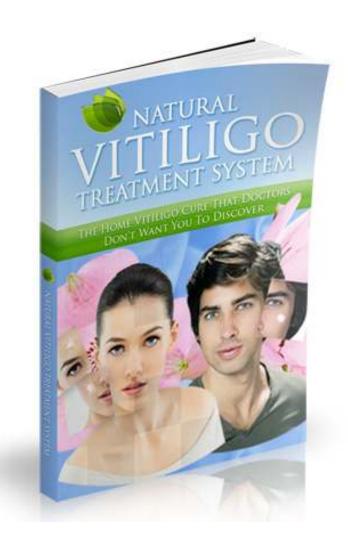




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Chapter 1

Vitiligo: Overview, Risk Factors, Symptoms & Classification

What is Vitiligo?

Vitiligo is a skin disease in which patches of skin all over the body lose their real color and become white. This happens due to the cells responsible for making color in these areas of the skin getting destroyed. These cells are called melanocytes. Other than the skin, vitiligo can also affect the eyes and the mucous membranes of a person.

What Causes Vitiligo?

The exact cause of vitiligo is unknown, for there are countless opinions, ideas and even contradictory research studies about the real causes. Some researchers have the opinion that it is an autoimmune disease, in which the human body's immune system unexpectedly starts attacking some parts of the body. It is believed that the immune system starts attacking the meloanocytes in the skin responsible for pigmentation. Moreover, this disease may have its roots in a person's genetic makeup as well.

Others are of the opinion that the melanocytes begin to destroy themselves. Many researchers say that sometimes some events, such as severe sunburn and emotional distress, can bring about this disease. However, there is no proof that these factors are actually responsible for causing vitiligo in any way.

Who Is Affected by Vitiligo?

Vitiligo has substantial impact on people all over the globe. For example, in the US alone, around 1 to 2 million people have this disease and most of them have developed it before turning 40. It has been observed that this disease has the same impact on all races and genders, regardless of area or environment.

According to studies, people having specific autoimmune diseases, such as hyperthyroidism, are more prone to suffer from vitiligo. Researchers and health scientists have not been able to figure out why this is so. Simultaneously, it has been noted that most people with vitiligo do not have any other autoimmune diseases.

Vitiligo has a genetic factor attached to it as well, and children whose parents have suffered from this disease are more susceptible to it. However, this does not necessarily mean that a person whose parent has vitiligo will definitely develop the disease.

Symptoms

Discolored patches on different sections of the skin are the major symptoms of vitiligo. Mostly, these patches are found on areas most exposed to the sun, such as the hands, feet, face, arms and lips. There are other areas where these white patches can be clearly observed:

- Around the mouth
- Nostrils
- Navel
- Genitals
- Rectal sections
- The armpits and the groin
- Eyes

Moreover, people who suffer from vitiligo have early gray hair as well. Sometimes, a loss of color inside the mouth is also observed.

Classification of Vitiligo

In vitiligo, the patient's skin cells start losing melanin, which is responsible for the skin's pigmentation. Melanocytes, as said earlier, are responsible for producing melanin, which in turn gives our skin its natural color. The more melanin your melanocytes produce, the darker your skin color gets. Now, if a bodily dysfunction destroys your

melanocytes or stops the production of melanin, this loss shows itself in the form of white skin patches on different parts of the body. These dreaded white skin sections are symptoms of invading vitiligo.

Vitiligo may affect people belonging to all genders and races. According to recent surveys, about 40 to 50 million people are victims of this disease. Vitiligo has numerous classifications, but the disease may be broadly broken down into two main ones:

1. General Vitiligo

This sort of vitiligo is commonly referred to as bilateral vitiligo. In this type, the acrofacial areas, such as the hands, feet, and face, and distal extremities get affected by the depigmentation process and are discolored. In this type of vitiligo, the patches may appear in both symmetric and asymmetric patterns.

2. Segmental Vitiligo

In this category of vitiligo, the discolored patches appear in either of the two fashions: dermatomal or quasidermatomal. It is most commonly observed in children.

These major types of vitiligo may be further divided into other sub-categories as well.



Figure 1. Vitiligo in the facial region.



Figure 2. Vitiligo on the hands.

Subtypes of General Vitiligo

- 1. Acro-facial Vitiligo: This type of vitiligo only affects the face, head, feet, and hands. These prominent parts of the body are left discolored by the disease under discussion.
- Vulgaris Vitiligo: In this type, discolored patches of skin appear in classical, symmetric, or asymmetric patterns and are widely distributed all over the body.
- 3. **Mixed Vitiligo:** In this kind, the white patches appear in more than one pattern and they may emerge on any part of the body. For instance, the occurrence of acrofacial and segmental Vitiligo both is referred to as mixed vitiligo.
- **4. Universal or Complete Vitiligo:** If vitiligo patches appear all over body and the person gets affected completely, this condition is known as universal vitiligo.

Segmental Vitiligo Subtypes

- 1. Focal Vitiligo: In this type of vitiligo, one or more parts of a single body area are affected and discolored.
- **2. Mucosal Vitiligo:** In this type of vitiligo, the disease specifically hits the mucous membranes that make up the human body.

There are some other kinds of vitiligo as well, which may be regarded as a separate from the basic categories mentioned above. They are as follows:

Occupational Vitiligo

Chemical products, such as those used in skin bleaching and treating, may severely damage the skin cells and dehydrate them. Such conditions may lead to the

development of vitiligo. If vitiligo occurs due to such external chemical factors, it is known as occupational vitiligo.

Zostiform Vitiligo

The human body's peripheral nervous system comprises of many nerves that connect the organs and limbs that spread throughout the body to the central nervous system. If the vitiligo disease affects these peripheral nerves, then this type is known as Zostiform Vitiligo.

Quadrichrome Vitiligo

This type of vitiligo is a little different from those discussed above. In this kind, excessive pigmentation occurs in the skin due to which the patches that appear are darker than the skin's actual shade. It is quite harmless and does not pose any other threat to life.

Punctate Vitiligo

In this kind of vitiligo, lesions of the disease appear in all sizes.

Inflammatory Vitiligo

In inflammatory vitiligo, the discolored patches that appear are accompanied by a raised erythematous pruritic border.

Chapter 2

Diagnosis of Vitiligo

Vitiligo is fairly easy to detect and diagnose. Even a common physician can perform this task effectively in most of the cases. However, in some unusual cases, the help of a dermatologist may be required to perform the diagnosis. A general practice in this regard is to explore the history of the patient in question.

History of The Patient

Vitiligo may be the result of several external factors due to which it is necessary to take down the history of the patient. Pain arising from sunburn may prove to be a symptom due to which it is necessary to take a patients history of localized sunburn or lesional skin as it is called scientifically. Other than this, cutaneous trauma occurs during the onset of vitiligo, or when the disease spreads to new areas. Physicians can watch out for that as well.

Physical trauma, such as caused by friction or surgical incisions, may also trigger vitiligo. A patient's history is usually taken along with clinical evaluation in order to exclude factors such as previous inflammation, genetic disorders, infectious diseases, or chemical leukoderma. If a patient is younger than 30, the existence of family history of vitiligo and autoimmune diseases are identified as high risk factors

In around 30 percent of the cases, if a person is suffering from vitiligo, at least his or her first degree relatives will suffer from the condition as well. Such patients of vitiligo usually have an early onset of the disease. If the onset of the disease takes place at an older age, there is a possibility that another disorder, such as autoimmune thyroid disease or melanoma, is responsible for the condition.

Around 20 percent of people suffering from vitiligo have an already existing autoimmune disorder as well.

In this regard, autoimmune thyroid disease is a condition that is most commonly associated with vitiligo. Other disorders associated with the condition, albeit less commonly, are Addison's disease, SLE [systemic lupus erythematosus], pernicious anemia, and inflammatory bowel disease.

Physical Examination

In vitiligo, the affected skin is completely depigmented instead of getting hypopigmented. The disease also affects the periorificial and acral skin. If the perianal and genital skin is affected as well, it helps determine what sort of vitiligo the patient is suffering from. In Trichrome vitiligo, three skin colors or levels of pigmentation may be observed in a patient. In this condition, a rim of hypopigmented epidermis surrounds the achromatic patches of skin. In Quadr and Pentachrome vitiligo, more shades of skin may be observed. However, this type of vitiligo occurs very rarely and is usually found among the dark skinned people.

There are other symptoms associated with vitiligo. Halo nevus occurs around 10 times more in vitiligo patients as compared to the normal population. Blistering of the Vitiliginous areas due to sunburn, odema, and erythema are also signs of vitiligo. Uveitis is another condition that is usually found in patients suffering from vitiligo. The depigmentation due to vitiligo affects the choroid and retina in around 40 percent of patients.



Figure 3. Uveitis (swelling and irritation of the middle layer of the eye) is fairly common in vitiligo patients.

Wood's Lamp Examination

Wood's Lamp Examination is another technique for diagnosing vitiligo. The lamp emits UVA radiations with an average range of 315 to 400 nm and almost zero visible light. The resultant emitted radiations are known as black light. In this method, two criteria are useful in diagnosis:

- More Contrast: As vitiligo is accompanied by the loss of epidermal pigmentation, the UVA radiations do not penetrate deeper into the layers. The resultant contrast between the affected and unaffected skin areas gets enhanced.
- **2. Fluorescence Effect:** The vitiligo-infected skin gives off an unusual blue fluorescence whereas normal skin does not.

Laboratory Tests

Vitiligo is usually accompanied by autoimmune thyroiditis due to which relevant clinical testing and evaluation for the latter disease should be carried out in all suspected vitiligo patients. However, testing for other diseases and conditions will not give conclusive evidence for the diagnosis of vitiligo.

Skin Biopsy

Specialists have to opt for a skin biopsy in very rare cases. The melanocytes are most clearly identified with the use of specialized stains, such as Fontana-Masson stain, which highlight the melanin pigment. Furthermore, agents such as Dihydroxy-phenylalanine may be used to bring the unpigmented melanocytes to light as well.

In skin biopsy, a sample of the patient's skin is used to diagnose the condition of the skin and identify whether the condition is the result of a chronic skin condition, fungal, or bacterial infection.

The biopsy of a certain lesion of your skin, such as a tumor or mole removal, may prove to be helpful for the diagnosing specialist. It will help the specialist identify whether the infection is cancerous or benign. The skin sample obtained is further forwarded to specific laboratories where it is studied under a microscope to determine the disease and its real cause and type.

Here are the details of skin biopsy, which you may find useful:

- In punch biopsy, a small cylindrical section of the skin is removed using an instrument shaped like a cookie cutter. In this kind of biopsy, sometimes stitches are required to heal the wound.
- In excision biopsy, the entire area of skin suspected of vitiligo is cut out using a scalpel. This incision is usually closed by using stitches.
- In shave biopsy, the outermost layer of the infected lesion is shaved off using a scalpel and then examined.

Aspiration is a process that is used to study lesions filled with fluid. Your medical specialist can extract the fluid from the lesion using a small syringe arrangement.

There are certain risks associated with biopsy due to which it is usually the last option for the diagnosis of vitiligo. You should always discuss your condition with your doctor before opting for skin biopsy. Common risks that are associated with this procedure are

- Infection
- * Reaction to anesthetic
- Bleeding from biopsy region
- ❖ Pain
- Problems with wound healing.

Diagnosis is necessary because it determines the real cause and sometime removal of the cause can treat the disease. It is also helps the physician determine further treatment and take some other alternative routes to cure it.

Chapter 3

Treatment Options for Vitiligo:

Part 1 - Medical Therapies

1. Medical Therapies

A medical regime isn't always necessary for treating vitiligo. Sometimes the skin color goes back to normal without any treatment at all. For many others, products such as sunscreen and concealing cosmetics have the desired effects of improving the skin's appearance. For fair-skinned patients, avoiding the sun and the tanning process makes the affected areas almost undetectable.

However, in some cases, medical treatments are necessary. This decision is based on the size, number and location of the patches of affected skin. Medical treatments for this condition mostly focus on the skin tone. They do so by either restoring pigmentation or getting rid of the left over pigmentation.

These treatments take a long time, and usually spread over a period of 6 to 18 months. Moreover, you may have to try many treatments before finding the one that suits you best.

Topical Corticosteroid Therapy

Corticosteroids are useful substances that may return the lost color to the skin, especially if they are taken during the early stages of vitiligo. For people, having large portions of vitiligo affected skin, or children, topical corticosteroid creams and ointments of a milder nature maybe prescribed. Remember that medical treatments take some time to show results and you will have to wait for an average of 3 months before you will be able to observe any change in your skin's color. This treatment is both effective and easy but it can be accompanied by many side effects, hence a doctor should monitor

your progress while you are undergoing this treatment. Possible side effects include skin atrophy and skin striae. Sometimes, corticosteroids accompany a vitamin D derivative called Dovonex for maximum effect.

Topical Immunomodulators

These ointments, containing pimecrolimus and tacrolimus, are especially effective for patients of vitiligo with small and localized areas of depigmentation. It is found usually around the neck and face. This medical treatment may be used in conjunction with UVB treatments and is accompanied by lesser side effects as compared to corticosteroids. Nevertheless, they aren't totally safe and only a very small amount of research has been carried out in this area. There is also a prevalent concern in the medical world that this treatment may trigger skin cancer or lymphoma.

Topical Psoralen Plus Ultraviolet A [PUVA]

PUVA, also commonly referred to as phototherapy, is effective for those vitiligo patients with less than 20 percent of their bodies covered with vitiligo patches. In this treatment, a thin film of a substance called psoralen is applied onto the depigmented skin for about 30 minutes before the skin is exposed to UVA light. The chemical mentioned above makes the skin more sensitive to UVA radiations. Once this is done, the skin is exposed to UVA light, which in turn colors the treated areas light pink. As the skin begins to heal, the normal color of a patient's skin starts returning. For effective results through this therapy, you will need to visit your doctor about once or twice per week.

Another type of this treatment is known as water bath PUVA. In this treatment, the patient has to lie in a bathtub of water that contains psoralen for 15 minutes before exposure to UVA light.

This treatment is accompanied by possible side effects as well. These include severe blistering and sun burns and hyperpigmentation of the skin. The former may be avoided by avoiding exposure to sunlight after the treatment.

Oral Psoralen Photochemotherapy [Oral PUVA]

Oral PUVA is recommended to patients, having than 20 percent of their entire skin covered by depigmented vitiligo. In this method, an oral dosage of psoralen is taken around two hours before exposure to UVA light. As observed in the topical method, the exposed vitiligo skin turns pink after exposure and gradually takes on the normal skin color. For the desired effect, you will need to visit your doctor around two to three times per week and these visits should be separated by at least a day. If you don't happen to have access to a doctor with the proper equipment required for this procedure, you may use natural sunlight as well. However, it is better to consult your doctor during this process. Let him or her determine how much sun exposure is required and they would monitor your skin throughout this time period.

Side Effects

There are many side effects associated with this type of therapy. These include over-darkening of the skin, sunburn, abnormal hair growth, itching, nausea and vomiting. These are the short term effects of this therapy. In the long run, you increase your risks of developing skin cancer due to the increased exposure to UVA radiation. Furthermore, this treatment is not recommended for children younger than 10 years, since it can damage their eyes and increases their chances of developing cataracts.

However, you can reduce your chances of developing skin cancer by avoiding sunlight for around one to two days after your treatment session. You can further decrease your chances by using a sunscreen regularly. Wear UVA protective glasses in order to minimize the possible damage to your eyes.

Narrowband Ultraviolet B [UVB] Therapy

This is an alternative to the traditional PUVA. Narrowband UVB uses a special wavelength of light known as Ultraviolet B as opposed to the Ultra Violet A light used by PUVA. This specific treatment may be carried out thrice per week, similar to PUVA. However, the entire treatment process is greatly simplified by the fact that it does not require prior application of psolaren and due to this distinguishing feature, it is becoming popular. Nevertheless, there is still debate over whether it is more effective than PUVA or not. Moreover, its long-term effects have not been analyzed as yet.

These narrowband wavelengths may be used to target focused areas, using a focused light source such as a laser. The small experiments carried out using this method have been promising so far but this treatment is not readily available in an average dermatologist's office due to the increase cost of the special equipment.

Excimer Laser

This special laser is used to target specific skin areas with UVB light. Due to its nature, it can only be used to treat small sections of vitiligo-infected skin. Therefore, it is used in conjunction with other drugs. Its side effects include blistering and redness of skin.

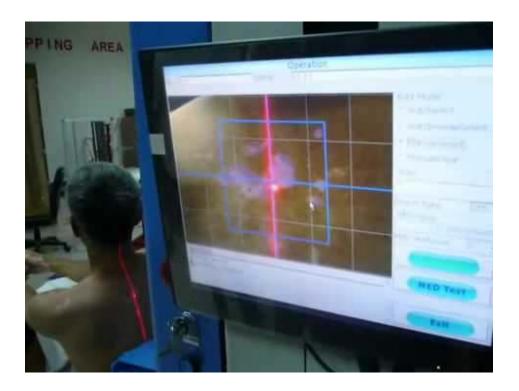


Figure 4. Excimer laser treatment.

Depigmentation

If half or more than half of your skin is covered with vitiligo-infected skin, depigmentation is an option for you. In this treatment, the tone of the unaffected parts of the skin area is lightened to match with the skin sections, having already become discolored. In this medical treatment, the patient has to apply special chemical, called monobenzone ether of hydroquinone, on the unaffected parts of the skin about twice a day. This chemical lightens your skin tone and the patient should continue with this practice until the two shades or his or her skin are more or less the same.

This treatment is usually accompanied by redness and swelling. Other side effects include dry and itchy skin and your skin will become permanently sensitive to sunlight. If you are undergoing this treatment, make sure that you avoid coming into contact with a person until around two hours after you have put on the chemical agent.

Surgical Therapies

These therapies can be used on areas of skin with stable vitiligo conditions. Grafting and transplant procedures maybe employed to deliver the desired results. Grafts of skin maybe removed from areas not visible and grafted onto the visible vitiligo areas. After this, light is usually used to propagate the pigment to spread across the grafter area.

In some parts of the world, such as India, researchers are using samples of normal skin to make cultures of melanocytes and keratinocytes. These cells are then spread over the vitiligo-infected areas and are allowed to spread. These areas having been treated are covered with bandages for some time to avoid interference. These surgical therapies are usually used on areas of segmental vitiligo as this condition becomes stable after some time. However, surgical therapies are accompanied with the risks of causing skin trauma, which in turn triggers vitiligo even more. As a result, these techniques are only practiced if the patient's condition has been stable for over a year. There are certain other side effects associated with this therapy. These include scarring and the cobblestone or patch work effect. Here are some surgical treatments that are performed on Vitiligo patients.

Mini-Punch Grafting

In this method, small and thick skin grafts are planted on the discolored areas of the skin. Topical PUVA is then used to propel the process of stimulation. However, this treatment has a negative effect, namely the cobblestone effect.

Thin Split-Thickness Grafts

The technique is similar to mini-punch grafting but instead of taking a thick slice of skin, a thinner section is taken. This process usually requires anesthesia and is usually used to treat the lips and hands. Both the donor and acceptor areas may get scarred during this method.

Suction Blister Grafting

In this method, the dermis is separated from the epidermis, using a special suction device that inadvertently causes blisters. The separated epidermis is then placed on the vitiligo section of the skin. In this therapy, the area between grafts stays hypopigmented at times but there is very less scarring.

Transplant Therapies

In these therapies, either the melanocytes or combined melanocytes and keratinocytes are transplanted into the skin. In both the cases, the area in which the cells are to be transplanted is abraded with a laser. A dressing, consisting of the relevant cells in then, is placed on the area and the area remains covered until the skin heals. Sometimes, light is also used to enhance the process of pigmentation.

Transplantation Of Pure Melanocytes

This requires an optimum growth medium. As this is hard to achieve, it often delivers unexpected results. If the proper growth medium is not used, it could actually cause the development of malignant melanocyte cells. In this method,

the melanocytes from the donor skin are extracted and then cultured into a special growth medium.

Transplanting Melanocytes And Keratinocytes Together

This technique is considered easier than the previous one, since it does not require a growth medium. This is because the keratinocytes propagate the production of melanocytes. In this treatment, both the melanocytes and keratinocytes are removed from the donor skin.

Most people with vitiligo assume that the treatments available for this condition are miracle cures, having properties to remove the root cause of this disorder. However, most vitiligo treatments focus on the pigmentation process to enhance the appearance of the vitiligo patient. The following is a list of some vitiligo medical treatments and their possible negative side effects. Remember that these effects vary from person to person and are dependent upon considerations such as duration of treatment and skin type.

Negative Effects of Therapies

Negative Effects of Phototherapy [NB UVB & PUVA]

- Skin Damage
- Itching
- Premature Aging
- Increased risk of skin cancer
- Dry Skin
- Reddening of skin
- Upset Stomach

Negative Effects of Micro-pigmentation [Tattooing]

- Tattoo color fades with time
- Red bumps due to inflammation

- Keloid Scars
- Allergic reactions
- Mismatch of tattoo color
- Tattoo color does not tan

Negative Effects of Steroids

- Leads to relapse
- Stretch marks
- Skin shrinkage

Negative Effects of Excimer Laser

- Blisters
- Sores
- Erythema
- Hyperpigmentation

Negative Effects of Depigmentation:

- Not easily reversible
- Skin becomes sensitive to sunlight
- Redness and inflammation
- Itching
- Dry Skin

Some Common Drugs and Side Effects

i. Monobenzone

Be very careful while using this drug. If you are allergic to the compound monobenzene, don't use this drug. Moreover, don't apply it on the areas not discolored due to vitiligo. This compound may take around 4 months to deliver the desired effects. It is essential that you keep on using this medicine as per your doctor's instructions and

consult him or her if you don't notice any improvements in your conditions after one month of treatment. If you are undergoing this treatment, it is best to avoid sunlight and tanning salons. This is because monobenzone makes your skin permanently sensitive to sunlight. Use sunscreen whenever you go out in the sun and exercise extreme caution.

ii. Methoxsalen Oral

This drug is specifically used to treat extreme cases of vitiligo. Hence, it should only be used if the vitiligo condition does not respond well to other treatments. This is because this specific drug has some extreme side effects such as skin cancer, aging and cataracts. You should always consult your doctor before going for this treatment.

This drug is available is different doses and each dose is used for a different purpose. Therefore, you should not switch doses, unless your physician recommends the dose-switch. Keeping the gravity of the situation in mind, please check your dose every time it is refilled.

iii. Methoxsalen Top

Methoxsalen Top is used in conjunction with UVA to return pigmentation to the discolored areas of the skin. This chemical works by making the vitiligo-infected skin more sensitive to the ensuing ultraviolet radiations. As a result, the number of melanocytes, which are responsible for producing melanin in the skin, is increased. This drug is not recommended for patients younger than 12 years of age.

How to use Methoxsalen Top?

This special agent is first applied to the vitiligo-affected areas by a medical specialist. These areas are then exposed to UVA light. The number of times you should get this done per week is dependent upon your skin's response to the treatment.

Once you have treated your skin with this drug, protect it from exposure to sunlight. Even sunlight through the windows may prove to be harmful. This is because this

excessive exposure to UVA rays may lead to sunburns. If you cannot avoid the sun completely, put on sunscreen and wear clothes that cover up all the exposed parts of your body. Your doctor will be able to provide you with relevant information regarding the type of sunscreen to use.

You will start to see an improvement in your condition in about a couple of weeks but the desired final effect will be obtained after 6 to 9 months. If your condition remains stagnant or starts deteriorating, immediately consult your doctor.

iv. Oxsoralen Top

This compound is used with controlled doses of UVA light to stimulate the process of pigmentation in the vitiligo-affected areas of the skin. This drug works in a manner similar to Methoxsalen.

How to use Oxsoralen Top

Oxsoralen Top is used and applied in a manner similar to Methoxsalen. It is therefore accompanied by the same side effects and precautionary measures. A vitiligo patient should be very careful during the course of this treatment.

NOTE:

It is important to remember that all these medications have potential side effects and some of these side effects are very severe. It is therefore extremely important that you consult the relevant physician or doctor before opting for one or more of these treatments.

Part 2

Natural Vitiligo Remedies

1. Home and Natural Remedies

The saying goes that God has not created anything without purpose, and it proves quite true when finding out alternative treatments for vitiligo. You will be amazed to learn that some common home remedies work wonders in most cases and now they are considered a panacea in some vitiligo cases.

In this book you will be given as much information as possible about the natural treatment options available for this condition so that if you have stopped trying one thing, you can try another and if you do not find a simple remedy, the other one may prove effective in your case. The greatest advantage of these tactics is that they have almost no side effects, unlike conventional medical treatments.

Red Clay

Red clay is a potent remedy for vitiligo. It is usually found along hill slopes and riversides and is easily available in markets. It should be applied to the affected skin in conjunction with ginger juice. Keep the ratio one to one and apply it daily. Leave on the skin for 15 to 20 minutes. This remedy is very effective.

Radish Seeds

Another cure for the discolored spots left behind by vitiligo is that of radish seeds. You will have to prepare a paste of radish seeds to apply it to the affected areas. To make the mixture, take around 25 grams of these seeds and grind them. Make a fine paste by mixing this powder in two teaspoons of vinegar and apply it to the discolored skin. Your pigmentation will return gradually, and you will see a great improvement.

Other Guidelines

- Avoid beverages that promote too much activity such as soft drinks, tea and coffee during this remedy. This is because they may further irritate the skin in some vitiligo patients.
- Cut down your intake of packed, canned and junk food. These foods contain preservatives that may potentially further damage your affected skin.
- Reduce your oil and fatty food intake as excessive intake of these foods may worsen your vitiligo situation.

Goosefoot Vegetable

Goosefeet vegetable is an important member of the list of home remedies. It's very easy to use. Take the juicy part of this vegetable and apply it directly to the discolored part of your skin. Do this daily for two months and then see the results. You will find considerable improvement in your pigmentation and if there is less progress, prolong its use.

Mustard Oil and Turmeric

Turmeric has numerous health advantages due to which it is frequently used in Ayurvedic medicines. It is primarily used as an antiseptic and anti-inflammatory agent, but it has other positive effects as well. It prevents bacterial infections when it is applied to wounds and overall strengthens the human body's immunity system as well. Mustard oil removes toxic substances from the body and is an antibacterial agent. The two items, when used together, are very useful for vitiligo patients.

Here's the recipe for preparing this remedy:

Carefully mix 250 milliliters of mustard oil with a teaspoon of turmeric and apply this mixture twice a day on the affected areas of your skin. You will have to continue with this for more than a year to witness the positive effects. You will observe that your skin will get healthier and the stains of vitiligo will start fading away.

Wild Duckweed Tincture

Wild duckweed is an effective agent for adding pigmentation back to the white skin spots that are the consequence of vitiligo. It is also known as Lemna and is available in summers only. Some people confuse it with wild ducks, which is not the case. In fact, it is a weed.

Here are the instructions for preparing the Duckweed Tincture:

Wash the duckweed and soak a quarter cup of it in 500 milliliters of vodka. Leave it in this state for around a week and then separate the duckweed, using a strainer. Keep the remaining solution in a bottle. Before taking your daily meals, mix around six tablespoons of the solution with two tablespoons of water and consume it twice a day. Be sure to take it on a regular basis, and you will witness the difference with time.



Figure 5. Wild Duckweed.

Corylifolia [Babchi]

Corylifolia, also known as Babchi, is an effective agent for treating vitiligo as well. These seeds are obtained from the Psoralea plant, which is very popular for its antivitiligo properties. Make a paste of Babchi seeds and apply it to the vitiligo-affected skin. You should do this in the early morning. Once you are done applying, sit in the sunlight for about 20 minutes.

Babchi seeds may be used with ginger juice for this condition as well. You can make the ginger juice very easily by boiling an inch of ginger in around 250 milliliters of water. Once you've made the juice, add the Babchi seeds and allow the mixture to cool down. Once it has cooled down, drink the mixture. The optimum time for having this mixture is in the morning before eating or drinking anything. You can use the Babchi seeds for three days before replacing them with new ones, but you will have to make the ginger juice every day.



Figure 6. Babchi (Corylifolia) seeds from the Psoralea plant.

Khella

Khella is said to be one of the oldest herbs ever know in the history, even dating back to 4,000 years of Egyptian era. It is from the family of carrots and parsley. The Egyptians used it for several ailments. Its plant is around three feet in height and produce clusters of flowers with the fruit appearing in late summer. It has been found to be effective for vitiligo.

Include a dose of 120 to 160 milligrams of Khella fruit or flower in your daily diet. You can even use it in powdered form as well.



Figure 7. The Khella herb.

Lime Juice and Basil Leaves

Basil leaves maybe found in almost every grocery store and are very useful when it comes to vitiligo. Apart from treating vitiligo, it also has stress decreasing, anti-aging, and antiviral properties. By applying a mixture of basil leaves and lime juice to the affected areas, patients of vitiligo can simulate melanin, and hence pigmentation, production.

In order to bring about the best results, here is what you should do:

Mix the extract of basil leaves and lime juice in a container and apply it to the discolored patches. Do this three or four times a day and you will notice a considerable

difference in five to six months. Moreover, this remedy is perfectly safe and has no side effects at all.

Indian Gooseberry and Acacia

This is another useful remedy for vitiligo. Mix portions of Acacia Katechu [called Kikar in local language] and Indian Gooseberry and add a dab of honey to this mixture. Consume around 50 milliliters of this mixture twice a day for effective results.

Pomegranate Leaves

Leaves of famous pomegranate trees are another effective cure for vitiligo. Powder some pomegranate leaves and store them. Consume around eight grams of this powder with water twice a day, and you will see positive results within two weeks.

Black Gram

Take some black grams and crush it in powdered form. Now add some water and make a fine paste. Apply it to the discolored areas and allow it to dry. Wash it off once it dries up. For effective results, apply this paste daily for four to five months.



Figure 8. Black Gram.

Ginger Leaves

Powder some ginger leaves with a poultice and apply this mixture on the affected areas. Another way is to eat 600 grams of uncooked cucumber, 3 betel leaves, and 15 grams ginger drink juice of lemons on daily basis. It will also work effectively.

Ginkgo Biloba

Gingko Biloba is a very popular plant in the herbal world that has its origins in the Zhejiang province of Eastern China. This herb is very unusual, because it has no close plant relatives. Scientists are looking into the matter of using this strange herb for the treatment of vitiligo. Its prospects are very promising: according to research, Biloba is not only effective in preventing the disease from spreading further, but is also an agent for skin re-pigmentation. The recommended dose is 40 milligrams three times daily.

According to some researchers, these suspected properties may be a result of the plant's antioxidant and immune system boosting properties. Moreover, the Biloba herb consists of ingredients that are very soothing and maybe used to cure inflammatory and allergic reactions as well.

In a 2011 study conducted by the University of Toronto, ALL vitiligo patients given ginkgo biloba exhibited a cessation of spreading; many also experienced repigmentation with this herb alone. This amazing study was reported in the March 2011 issue of BMC Complementary and Alternative Medicine.



Figure 9. Scientists have found that Ginkgo Biloba Extract (40mg 3 times daily) halts the spread of vitiligo and enhances re-pigmentation.

Neem

Neem is a famous tree mostly grown in India, Pakistan and other South Asian countries. It has very good healing properties. It is used in the treatment of a variety of skin conditions and is widely used by those patients who don't respond well to typical medical therapies. The skin ailments such as warts, acne, ringworm, eczema, psoriasis, scaling and dandruff have proved to be healed through its use. It also has anti-inflammatory and antibacterial properties due to which it is often used to heal minor skin abrasions and scrapes. Therefore, it has been used for vitiligo as well as it affects the skin working as a detox. Neem also boosts the human body's immunity system and it has ideal skin rejuvenating properties. Mostly, its leaves, barks and its small fruits are also used for skin care and blood purification.



Figure 10. The Neem plant.

Figs

Eating figs in their pure raw form are very good for curing vitiligo as they improve the blood circulation and purify the blood. Other than this, you can also apply them on to the affected areas. Roast some figs, powder them and make a fine paste by mixing water. Now apply the paste to the discolored areas of your skin and see the results.

Walnuts

Crush Walnuts into a fine powder and mix it with water to form a paste. Apply this mixture to the affected areas. You can also consume walnuts orally for achieving the desired results.

Indian Lilac Leaves

Indian Lilac leaves are very good for vitiligo patients as well, since these leaves contain the essential compounds that can effectively cure this condition. Extract the juice out of this leaves and drink the juice twice a day for effective results.

Psoralea Corylifolia

As the name suggests, this plant contains Psolaren, which has been discussed before as an anti-vitiligo agent. The seeds of this plant contain psoralen, which reacts with the UV light present in sunlight and causes the darkening to skin cells.

Barberry Root

This root contains many chemical compounds and substances that have anti-vitiligo properties. It has cytoprotective and antioxidant properties and contains a variety of valuable multi vitamins and beneficial elements. These include vitamin C, lutein, B-vitamin thiamine, zeaxanthin, beta-carotene, cobalt, zinc, and chromium. It also contains alkaloids such as resin, tannins, berberine, and oxyacanthine. You can use it by simply rubbing on the affected areas.

Leadwort root

Make a fine paste out of leadwort root and water. Apply this paste on the discolored patches regularly for effective results.

Celery

Celery is a plant widely considered useful by patients suffering from various skin diseases, such as vitiligo. Its use as an anti-vitiligo agent maybe traced back to older times and this association has been justified by new medical research as well.

Celery has a very high psoralen content, which makes it an ideal agent for treating this condition. Psolaren is an extremely potent agent used to treat vitiligo since ages. This compound, which is found abundantly in celery, stimulates the reaction between the skin and sunlight as it has been told earlier in the first chapter. This reaction produces melanin, which introduces pigmentation in the affected areas. These treatments, which involve Psolaren and sunlight, are commonly referred to as phototherapy treatments.

Coconut Oil

Coconut oil is perhaps the only oil that can be easily absorbed by the skin. It is used all over the world to keep the skin soft. It is also resistant to rancidity, because it oxidizes slowly. It also contains Vitamin E Alpha Tocopherol, which has renowned anti-oxidant properties. Indeed, coconut oil is an effective substance for treating vitiligo. It should be used twice daily: in the morning and before bed. Simply rub into the affected areas.



Figure 11. Coconut Oil is rich in Vitamin E and is easily absorbed through the skin.

Black Cumin

These seeds are obtained from a plant called Nigella Sativa and are a good herbal cure for vitiligo. They act by stimulating the melanocytes, which in turn activates pigmentation in the discolored areas of the skin.

Copper Vessel

Copper is an extremely effective agent for promoting pigmentation of the discolored areas. It does so by stimulating melanocyte in the affected patient's body. The stimulation of melanocyte in turn produces melanin, which is responsible for our skin's color. Take a copper vessel or container and fill it up with drinking water. Leave it overnight and drink in on an empty stomach in the morning. You will have to do this daily for six months in order to witness a considerable improvement in your skin pigmentation. It is an effective and safe remedy that can be easily practiced at home.

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