



# Vitiligo

September 2013

## Questions and Answers about Vitiligo

This booklet contains general information about vitiligo. Individual sections describe what vitiligo is, who is affected, its symptoms, how it is diagnosed, and treatment options. If you have further questions, you may wish to discuss them with your health care provider.

### What Is Vitiligo?

Vitiligo (vit-ill-EYE-go) is a pigmentation disorder in which melanocytes (the cells that make pigment) in the skin are destroyed. As a result, white patches appear on the skin in different parts of the body. Similar patches also appear on both the mucous membranes (tissues that line the inside of the mouth and nose) and the retina (inner layer of the eyeball). The hair that grows on areas affected by vitiligo sometimes turns white.

The cause of vitiligo is not known, but doctors and researchers have several different theories. There is strong evidence that people with vitiligo inherit genes that make them susceptible to depigmentation. The most widely accepted view is that the depigmentation occurs because vitiligo is an autoimmune disease—a disease in which a person's immune system reacts against the body's own organs or tissues. People's bodies produce proteins called cytokines that, in vitiligo, alter their pigment-producing cells and cause these cells to die. Another theory is that melanocytes destroy themselves. Finally, some people have reported that a single event, such as sunburn or emotional distress, triggered vitiligo; however, these events have not been scientifically proven as causes of vitiligo.

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### Who Is Affected by Vitiligo?

About 0.5 to 1 percent of the world's population have vitiligo. The average age of onset is in the mid-twenties, but it can appear at any age. The disorder affects both sexes and all races equally; however, it is more noticeable in people with dark skin.

Vitiligo seems to be somewhat more common in people with certain autoimmune diseases, including hyperthyroidism (an overactive thyroid gland), adrenocortical insufficiency (the adrenal gland does not produce enough of the hormone called corticosteroid), alopecia areata (patches of baldness), and pernicious anemia (a low level of red blood cells caused by the failure of the body to absorb vitamin B<sub>12</sub>). Scientists do not know the reason for the association between vitiligo and these autoimmune diseases. However, most people with vitiligo have no

other autoimmune disease.

Vitiligo sometimes runs in families. Children whose parents have the disorder are more likely to develop vitiligo. However, most children will not get vitiligo even if a parent has it, and most people with vitiligo do not have a family history of the disorder.

## What Are the Symptoms of Vitiligo?

People who develop vitiligo usually first notice white patches (depigmentation) on their skin. These patches are more commonly found on sun-exposed areas of the body, including the hands, feet, arms, face, and lips. Other common areas for white patches to appear are the armpits and groin and around the mouth, eyes, nostrils, navel, genitals, and rectum.

Vitiligo generally appears in one of three patterns:

- **Focal pattern**—depigmentation limited to one or only a few areas.
- **Segmental pattern**—depigmented patches that develop on one side of the body only.
- **Generalized pattern**—the most common pattern. Depigmentation occurs symmetrically on both sides of the body.

In addition to white patches on the skin, people with vitiligo may have premature graying of the scalp hair, eyelashes, eyebrows, and beard. People with dark skin may notice a loss of color inside their mouths.

## Will the Depigmented Patches Spread?

Focal pattern vitiligo and segmental vitiligo remain localized to one part of the body and do not spread. There is no way to predict if generalized vitiligo will spread. For some people, the depigmented patches do not spread. The disorder is usually progressive, however, and over time the white patches will spread to other areas of the body. For some people, vitiligo spreads slowly, over many years. For other people, spreading occurs rapidly. Some people have reported additional depigmentation following periods of physical or emotional stress.

## How Is Vitiligo Diagnosed?

The diagnosis of vitiligo is made based on a physical examination, medical history, and laboratory tests.

A doctor will likely suspect vitiligo if you report (or the physical examination reveals) white patches of skin on the body, particularly on sun-exposed areas, including the hands, feet, arms, face, and lips. If vitiligo is suspected, the doctor will ask about your medical history. Important factors in the diagnosis include a family history of vitiligo; a rash, sunburn, or other skin trauma that occurred at the site of vitiligo before depigmentation started; stress or physical illness; and premature graying of the hair (usually before age 35). In addition, the doctor will ask whether you or anyone in your family has had any autoimmune diseases and whether you are very sensitive to the sun.

To help confirm the diagnosis, the doctor may take a small sample (biopsy) of the affected skin to examine under a microscope. In vitiligo, the skin sample will usually show a complete absence of pigment-producing melanocytes. On the other hand, the presence of inflamed cells in the sample may suggest that another condition is responsible for the loss of pigmentation.

Because vitiligo may be associated with pernicious anemia (a condition in which an insufficient amount of vitamin B<sub>12</sub> is absorbed from the gastrointestinal tract) or hyperthyroidism (an overactive thyroid gland), the doctor may also take a blood sample to check the blood cell count and thyroid function. For some patients, the doctor may recommend an eye examination to check for uveitis (inflammation of part of the eye), which sometimes occurs with vitiligo. A blood test to look for the presence of antinuclear antibodies (a type of autoantibody) may also be done. This test helps determine if the patient has another autoimmune disease.

## How Can People Cope With the Emotional and Psychological Aspects of Vitiligo?

Although vitiligo is usually not harmful medically, its emotional and psychological effects can be devastating.

White patches of vitiligo can affect emotional and psychological well-being and self-esteem. People with vitiligo can experience emotional stress, particularly if the condition develops on visible areas of the body (such as the face, hands, arms, and feet) or on the genitals. Adolescents, who are often particularly concerned about their appearance, can be devastated by widespread vitiligo. Some people who have vitiligo feel embarrassed, ashamed, depressed, or worried about how others will react.

Fortunately, there are several strategies to help people cope with vitiligo. Also, various treatments—discussed in the next section—can minimize, camouflage, or, in some cases, even eliminate white patches. First, it is important to find a doctor who is knowledgeable about the disorder and takes it seriously. You must let your doctor know if you are feeling depressed, because doctors and other mental health professionals can help people deal with depression. You should also learn as much as possible about the disorder and treatment choices so that you can participate in making important decisions about your medical care.

Some people with vitiligo have found that cosmetics that cover the white patches improve their appearance and help them feel better about themselves. You may need to experiment with several brands of concealing cosmetics before finding the product that works best.

## What Treatment Options Are Available?

The main goal of treating vitiligo is to improve appearance. The choice of therapy depends on the number of white patches; their location, sizes, and how widespread they are; and what you prefer in terms of treatment. Each patient responds differently to therapy, and a particular treatment may not work for everyone. Current treatment options for vitiligo include medication, surgery, and adjunctive therapies (used along with surgical or medical treatments).

### *Medical Therapies*

A number of medical therapies, most of which are applied topically, can reduce the appearance of vitiligo. These are some of the most commonly used:

- **Topical therapy.** Creams, including corticosteroids, may be helpful in repigmenting (returning the color to) white patches, particularly if they are applied in the initial stages of the disease. Corticosteroids are a group of drugs similar to hormones such as cortisone, which are produced by the adrenal glands. Yet, as with any medication, these creams can cause side effects. For this reason, the doctor will monitor you closely for skin shrinkage and skin striae (streaks or lines on the skin).
- **Light treatment.** Light therapy or excimer laser treatments are also used to treat vitiligo, although results may not be permanent.
- **Psoralen photochemotherapy.** Also known as psoralen and ultraviolet A (PUVA) therapy, this is an effective treatment for many patients. The goal of PUVA therapy is to repigment the white patches. However, it is time consuming, and care must be taken to avoid side effects, which can sometimes be severe. Psoralen is a drug that contains chemicals that react with ultraviolet light to cause darkening of the skin. The treatment involves taking psoralen by mouth (orally) or applying it to the skin (topically). This is followed by carefully timed exposure to sunlight or to ultraviolet A (UVA) light that comes from a special lamp. You must minimize exposure to sunlight at other times.

Known side effects of oral psoralen include sunburn, nausea and vomiting, itching, abnormal hair growth, and hyperpigmentation. Oral psoralen photochemotherapy may also increase the risk of skin cancer, although the risk is minimal at doses used for vitiligo. If you are undergoing oral PUVA therapy, you will be advised to apply sunscreen, avoid direct sunlight, and wear protective UVA sunglasses for a period of time after each

treatment.

- **Depigmentation.** This treatment involves fading the rest of the skin on the body to match the areas that are already white. For people who have vitiligo on more than 50 percent of their bodies, depigmentation may be recommended. Patients apply the drug monobenzyl ether of hydroquinone (monobenzone) twice a day to pigmented areas until they match the already depigmented areas. You will be advised to avoid direct skin-to-skin contact with other people for at least 2 hours after applying the drug, as transfer of the drug may cause depigmentation of the other person's skin. The major side effect of depigmentation therapy is inflammation (redness and swelling) of the skin. You may also experience itching or dry skin. Depigmentation tends to be permanent and is not easily reversed. In addition, a person who undergoes depigmentation will always be unusually sensitive to sunlight.

### *Surgical Therapies*

Surgical techniques may be an option when topical creams and light therapy do not work. These include:

- **Autologous skin grafts.** The doctor removes skin from one area of your body and attaches it to another area. This type of skin grafting is sometimes used for patients with small patches of vitiligo. The doctor removes sections of the normal, pigmented skin (donor sites) and places them on the depigmented areas (recipient sites). There are several possible complications of autologous skin grafting. Infections may occur at the donor or recipient sites. The recipient and donor sites may develop scarring, a cobblestone appearance, or a spotty pigmentation, or may fail to repigment at all. Many people find skin grafting neither acceptable nor affordable.
- **Skin grafts using blisters.** In this procedure, the doctor creates blisters on your pigmented skin by using heat, suction, or freezing cold. The tops of the blisters are then cut out and transplanted to a depigmented skin area. The risks of blister grafting include scarring and lack of repigmentation. However, there is less risk of scarring with this procedure than with other types of grafting.
- **Micropigmentation (tattooing).** This procedure involves implanting pigment into the skin with a special surgical instrument. It works best for the lip area, particularly in people with dark skin. However, it is difficult for the doctor to match perfectly the color of the skin of the surrounding area.

The tattooed area will not change in color when exposed to sun, although the surrounding normal skin will. So even if the tattooed area matches the surrounding skin perfectly at first, it may not later on. Tattooing tends to fade over time. In addition, tattooing of the lips may lead to episodes of blister outbreaks caused by the herpes simplex virus.

- **Autologous melanocyte transplants.** In this procedure, the doctor takes a sample of your normal pigmented skin and places it in a laboratory dish containing a special cell culture solution to grow melanocytes. When the melanocytes in the culture solution have multiplied, the doctor transplants them to your depigmented skin patches. This procedure is currently experimental and is impractical for the routine care of people with vitiligo. It is also very expensive, and its side effects are not known.

### *Additional Therapies*

In addition to medical and surgical therapies, there are many things you can do on your own to protect your skin, minimize the appearance of white patches, and cope with the emotional aspects of vitiligo:

- **Sunscreens.** People who have vitiligo, particularly those with fair skin, should minimize sun exposure and use a sunscreen that provides protection from both UVA and ultraviolet B light. Tanning makes the contrast between normal and depigmented skin more noticeable. Sunscreen helps protect the skin from sunburn and long-term damage.
- **Cosmetics.** Some patients with vitiligo cover depigmented patches with stains, makeup, or self-tanning

lotions. These cosmetic products can be particularly effective for people whose vitiligo is limited to exposed areas of the body. Many cosmetic companies offer makeup or dyes that you may find helpful for covering up depigmented patches. Self-tanning lotions have an advantage over makeup in that the color will last for several days and will not come off with washing.

- **Counseling and support groups.** Many people with vitiligo find it helpful to get counseling from a mental health professional. People often find they can talk to their counselor about issues that are difficult to discuss with anyone else. A mental health counselor can also offer support and help in coping with vitiligo. In addition, it may be helpful to attend a vitiligo support group.

## What Research Is Being Conducted on Vitiligo?

In the past, research on the role that melanocytes play in vitiligo has greatly increased. Genetic advances have permitted relatively rapid increases in knowledge of melanocytes at the cellular and molecular levels.

Much of the research that holds promise for understanding, treating, and possibly preventing vitiligo is supported by the NIAMS. Researchers are looking at the immune response to see if interrupting certain signals given off by melanocytes can help stop the spread of depigmentation. They are examining the way melanocytes receive signals from other skin cells that direct them to deposit the pigment.

Others are trying to determine the molecular mechanisms involved in creating melanocytes. This understanding may allow researchers to stimulate the creation of melanocytes from stem cells of hair follicles and use them to add pigment back into affected skin. Such a therapy may be more effective and safer than current light therapies.

The NIAMS also supports a large collaborative project looking for genes that may contribute to vitiligo in several ethnic groups. It is hoped that genetic analyses of these groups will enable identification of one or more vitiligo susceptibility genes and the roles the genes play in contributing to the disease. This work may lead to development of specific approaches to disease therapy and prevention for patients at high genetic risk.

More information on research is available from the following resources:

- [NIH Clinical Research Trials and You](#) helps people learn more about clinical trials, why they matter, and how to participate. Visitors to the website will find information about the basics of participating in a clinical trial, first-hand stories from actual clinical trial volunteers, explanations from researchers, and links to how to search for a trial or enroll in a research-matching program.
- [ClinicalTrials.gov](#) offers up-to-date information for locating federally and privately supported clinical trials for a wide range of diseases and conditions.
- [NIH RePORTER](#) is an electronic tool that allows users to search a repository of both intramural and extramural NIH-funded research projects from the past 25 years and access publications (since 1985) and patents resulting from NIH funding.
- [PubMed](#) is a free service of the U.S. National Library of Medicine that lets you search millions of journal citations and abstracts in the fields of medicine, nursing, dentistry, veterinary medicine, the health care system, and preclinical sciences.

## Where Can People Find More Information About Vitiligo?

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)  
Information Clearinghouse  
National Institutes of Health

1 AMS Circle  
Bethesda, MD 20892-3675  
Phone: 301-495-4484  
Toll Free: 877-22-NIAMS (877-226-4267)

TTY: 301-565-2966  
Fax: 301-718-6366  
Email: [NIAMSinfo@mail.nih.gov](mailto:NIAMSinfo@mail.nih.gov)  
Website: <http://www.niams.nih.gov>

## Other Resources

### American Academy of Dermatology (AAD)

Website: <http://www.aad.org>

### American Vitiligo Research Foundation

Website: <http://www.avrf.org>

### National Vitiligo Foundation, Inc. (NVF)

Website: <http://www.nvfi.org>

### Vitiligo Support International Inc.

Website: <http://www.vitiligosupport.org>

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## For Your Information

This publication contains information about medications used to treat the health condition discussed here. When this publication was developed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact

### U.S. Food and Drug Administration

Toll Free: 888-INFO-FDA (888-463-6332)  
Website: <http://www.fda.gov>

For additional information on specific medications, visit Drugs@FDA at [www.accessdata.fda.gov/scripts/cder/drugsatfda](http://www.accessdata.fda.gov/scripts/cder/drugsatfda). Drugs@FDA is a searchable catalog of FDA-approved drug products.

For updates and questions about statistics, please contact

**Centers for Disease Control and Prevention's National Center for Health Statistics**

Website: <http://www.cdc.gov/nchs>

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