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January 2012

Questions and Answers about Alopecia Areata

This booklet contains general information about alopecia areata (al-oh-PEE-shah ar-ee-AH-tah). It describes what alopecia areata is, its causes, and treatment options. Information is also provided on current research. At the end is a list of key words to help you understand the terms in this booklet. If you have further questions after reading this booklet, you may wish to discuss them with your doctor.

Alopecia areata is just one cause of alopecia, or hair loss. This booklet deals only with alopecia areata.

What Is Alopecia Areata?

Alopecia areata is considered an autoimmune disease, in which the immune system, which is designed to protect the body from foreign invaders such as viruses and bacteria, mistakenly attacks the hair follicles, the structures from which hairs grow. This can lead to hair loss on the scalp and elsewhere.

In most cases, hair falls out in small, round patches about the size of a quarter. In many cases, the disease does not extend beyond a few bare patches. In some people, hair loss is more extensive. Although uncommon, the disease can progress to cause total loss of hair on the scalp (referred to as alopecia areata totalis) or complete loss of hair on the scalp, face, and body (alopecia areata universalis).

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What Causes It?

In alopecia areata, immune system cells called white blood cells attack the rapidly growing cells in the hair follicles. The affected hair follicles become small and drastically slow down hair production. Fortunately, the stem cells that continuously supply the follicle with new cells do not seem to be targeted. So the follicle always has the potential to regrow hair.

Scientists do not know exactly why the hair follicles undergo these changes, but they suspect that a combination of genes may predispose some people to the disease. In those who are genetically predisposed, some type of trigger—perhaps a virus or something in the person's environment—brings on the attack against the hair follicles.

Who Is Most Likely to Get It?

Alopecia areata affects nearly 2 percent of Americans of both sexes and of all ages and ethnic backgrounds. It often begins in childhood.

If you have a close family member with the disease, your risk of developing it is slightly increased. If your family member lost his or her first patch of hair before age 30, the risk to other family members is greater. Overall, one in five people with the disease has a family member who has it as well.

Is My Hair Loss a Symptom of a Serious Disease?

Alopecia areata is not a life-threatening disease. It does not cause any physical pain, and people with the condition are generally healthy otherwise. But for most people, a disease that unpredictably affects their appearance the way alopecia areata does is a serious matter.

The effects of alopecia areata are primarily socially and emotionally disturbing. In alopecia

universalis, however, loss of eyelashes and eyebrows and hair in the nose and ears can make the person more vulnerable to dust, germs, and foreign particles entering the eyes, nose, and ears.

Alopecia areata often occurs in people whose family members have other autoimmune diseases, such as type 1 diabetes, rheumatoid arthritis, thyroid disease, systemic lupus erythematosus, pernicious anemia, or Addison's disease. People who have alopecia areata do not usually have other autoimmune diseases, but they do have a higher occurrence of thyroid disease, atopic eczema, nasal allergies, and asthma.

Can I Pass It On to My Children?

It is possible for alopecia areata to be inherited. However, most children with alopecia areata do not have a parent with the disease, and the vast majority of parents with alopecia areata do not pass it along to their children.

Alopecia areata is not like some genetic diseases in which a child has a 50–50 chance of developing the disease if one parent has it. Scientists believe that there may be a number of genes that predispose certain people to the disease. It is highly unlikely that a child would inherit all of the genes needed to predispose him or her to the disease.

Even with the right (or wrong) combination of genes, alopecia areata is not a certainty. In identical twins, who share all of the same genes, the concordance rate is only 55 percent. In other words, if one twin has the disease, there is only a 55-percent chance that the other twin will have it as well. This shows that other factors besides genetics are required to trigger the disease.

To learn more about the genes and other factors involved in alopecia areata risk, the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) sponsored the development of an alopecia areata registry. (For more information about the registry, see [“What Are Some Promising Areas of Research?”](#))

Will My Hair Ever Grow Back?

There is every chance that your hair will regrow with or without treatment, but it may also fall out again. No one can predict when it might regrow or fall out. The course of the

disease varies from person to person. Some people lose just a few patches of hair, then the hair regrows, and the condition never recurs. Other people continue to lose and regrow hair for many years. A few lose all the hair on the scalp; some lose all the hair on the scalp, face, and body. Even in those who lose all their hair, the possibility for full regrowth remains.

In some, the initial hair regrowth is white, with a gradual return of the original hair color. In most, the regrown hair is ultimately the same color and texture as the original hair.

What Can I Expect Next?

The course of alopecia areata is highly unpredictable, and the uncertainty of what will happen next is probably the most difficult and frustrating aspect of the disease. You may continue to lose hair, or your hair loss may stop. The hair you have lost may or may not grow back, and you may or may not continue to develop new bare patches.

How Is It Treated?

Although there is neither a cure for alopecia areata nor drugs approved for its treatment, some people find that medications approved for other purposes can help hair grow back, at least temporarily. The following are some treatments for alopecia areata. Keep in mind that although these treatments may promote hair growth, none of them prevent new patches or actually cure the underlying disease. Consult your health care professional about the best option for you. A combination of treatments may work best. Ask how long the treatment may last, how long it will take before you see results, and about the possible side effects.

- **Corticosteroids.** Corticosteroids are powerful antiinflammatory drugs similar to a hormone called cortisol, which is produced in the body. Because these drugs suppress the immune system if given orally, they are often used in the treatment of various autoimmune diseases, including alopecia areata. Corticosteroids may be administered in three ways for alopecia areata:
 - **Local injections.** Injections of steroids directly into hairless patches on the scalp, and sometimes the brow and beard areas, are effective in increasing hair growth in most

people, and are the most common treatment in adults in the United States. Injections deliver small amounts of cortisone to affected areas, avoiding the more serious side effects encountered with long-term oral use. Side effects may include transient pain, as well as temporary depressions in the skin that usually fill in by themselves.

- **Oral corticosteroids.** Corticosteroids taken by mouth are a mainstay of treatment for many autoimmune diseases and may be used in extensive alopecia areata. But because of the risk of side effects of oral corticosteroids, such as hypertension, weight gain, osteoporosis, and cataracts, they are used only occasionally for alopecia areata and for short periods of time.
- **Topical ointments.** Ointments or creams containing steroids rubbed directly onto the affected area are less traumatic than injections and, therefore, are sometimes preferred for children. However, corticosteroid ointments and creams alone are less effective than injections.
- **Minoxidil (5 percent).** Topical minoxidil solution promotes hair growth in several conditions in which the hair follicle is small and not growing to its full potential. Minoxidil is approved by the U.S. Food and Drug Administration (FDA) for treating male and female pattern hair loss. It may also be useful in promoting hair growth in alopecia areata. The topical solution, applied twice daily, has been shown to promote hair growth in both adults and children, and may be used on the scalp, eyebrow, and beard areas.
- **Anthralin.** Anthralin, a synthetic tar-like substance that alters immune function in the affected skin, is an approved treatment for psoriasis. Anthralin is also commonly used to treat alopecia areata. It is applied topically.

- **Topical sensitizers.** Topical sensitizers are medications that, when applied to the scalp, provoke an allergic reaction that leads to itching, scaling, and eventually hair growth. Two topical sensitizers are used in alopecia areata: squaric acid dibutyl ester (SADBE) and diphenylcyclopropanone (DPCP). They should be administered by doctors familiar with these products.
- **Photochemotherapy.** In photochemotherapy, a treatment used most commonly for psoriasis, a person is given a light-sensitive drug called psoralen either orally or topically and then exposed to an ultraviolet light source. This combined treatment is called PUVA. Patients must go to a treatment center where the equipment is available at least two to three times per week. If used for long periods, the treatment may increase the risk of developing skin cancer.
- **Alternative therapies.** When drug treatments fail to bring sufficient hair regrowth, some people turn to alternative therapies. Alternatives purported to help alopecia areata include acupuncture, aromatherapy, evening primrose oil, zinc and vitamin supplements, and Chinese herbs. Most alternative therapies are not backed by clinical trials, and because hair can regrow spontaneously in alopecia areata, it is difficult to evaluate the effectiveness of these alternatives. Furthermore, just because these therapies are natural does not mean that they are safe. As with any therapy, it is best to discuss these treatments with your doctor before you try them.

In addition to treatments to help hair grow, there are measures that can be taken to minimize the effects of excessive sun exposure or discomforts of lost hair.

- Sunscreens are important for the scalp, face, and all exposed areas.
- Eyeglasses (or sunglasses) protect the eyes from excessive sun and from dust and debris when eyebrows or eyelashes are missing.
- Wigs, caps, or scarves protect the scalp from the sun and keep the head

warm.

- An ointment applied inside the nostrils keeps them moisturized and helps to protect against organisms invading the nose when nostril hair is missing.

How Will Alopecia Areata Affect My Life?

This is a common question, particularly for children, teens, and young adults who are beginning to form lifelong goals and who may live with the effects of alopecia areata for many years. The comforting news is that alopecia areata is not a painful disease and does not make people feel sick physically. It is not contagious, and people who have the disease are generally healthy otherwise. It does not reduce life expectancy and it should not interfere with going to school, playing sports and exercising, pursuing any career, working, marrying, and raising a family.

The emotional aspects of living with hair loss, however, can be challenging. Many people cope by learning as much as they can about the disease, speaking with others who are facing the same problem, and, if necessary, seeking counseling to help build a positive self-image.

How Can I Cope With the Effects of This Disease?

Living with hair loss can be difficult, especially in a culture that views hair as a sign of youth and good health. Even so, most people with alopecia areata are well-adjusted, contented people living full lives.

The key to coping is valuing yourself for who you are, not for how much hair you have or don't have. Many people learning to cope with alopecia areata find it helpful to talk with other people who are dealing with the same problems. Nearly 2 percent of Americans have this disease at some point in their lives, so you are not alone. If you would like to be in touch with others with the disease, the National Alopecia Areata Foundation (NAAF) can help through its pen pal program, message boards, annual conference, and support groups that meet in various locations nationwide. To find contact information for NAAF and other organizations that can help people with alopecia areata, see ["Where Can People Find More Information About Alopecia Areata?"](#)

Another way to cope with the disease is to minimize its effects on your appearance. If you have extensive hair loss, a wig or hairpiece can look natural and stylish. For small patches of hair loss, a hair-colored powder, cream, or crayon applied to the scalp can make hair loss less obvious by eliminating the contrast between the hair and the scalp. Skillfully applied eyebrow pencil can mask missing eyebrows.

Children with alopecia areata may prefer to wear bandanas or caps. There are many styles available to suit a child's interest and mood. It is often helpful if a parent informs teachers, coaches, and others that the child has alopecia areata, that it is not contagious, and that the child is healthy.

For women, attractive scarves can hide patchy hair loss, and proper makeup can camouflage the effects of lost facial hair. If you would like to learn more about camouflaging the cosmetic aspects of alopecia areata, ask your doctor or members of your local support group to recommend a cosmetologist who specializes in working with people whose appearance is affected by medical conditions.

What Are Some Promising Areas of Research?

Although a cure is not imminent, researchers are making headway toward a better understanding of the disease. This increased understanding will likely lead the way to better treatments for alopecia areata and eventually a way to cure it or even prevent it.

The National Institutes of Health (NIH) and other organizations support research into the disease and its treatment. Here are some promising areas of research:

- **Developing animal models.** This is a critical step toward understanding any disease, and much progress has been made. Researchers have identified an inbred strain of mice that spontaneously develops a condition similar to the adult-onset form of alopecia areata. By studying mice with a disease similar to human alopecia areata, researchers hope to learn more about the mechanism of the disease and eventually develop immune system treatments for the disease in people.
- **Studying hair follicle development.**

By studying how hair follicles form in mouse embryos, researchers hope to gain a better understanding of hair growth cycle biology that may lead to treatments for the underlying disease process.

- **Understanding stem cell biology.** Epithelial stem cells are immature cells that are responsible for regenerating and maintaining a variety of tissues, including the skin and the hair follicles. Stem cells in the follicle appear to be spared from injury in alopecia areata, which may explain why the potential for regrowth is always there in people with the disease. By studying the biology of these cells, scientists hope to gain a better understanding of factors that trigger the disease.
- **Finding genes.** Scientists are studying the possible genetic causes and mechanisms of the disease both in families that have one or more people with the disease and in the general population. They look at families with three or more affected individuals and then look at large numbers of unrelated *affected* people and compare their genetic markers with *unaffected* people; this is called a “genomewide association study” or “GWAS.”
- Scientists have identified genetic variations associated with the development of alopecia areata. They also discovered that alopecia areata has genetic similarities to other autoimmune diseases, namely type 1 diabetes, rheumatoid arthritis, and celiac disease. An understanding of the genetics of the disorder will aid in disease prevention, early intervention, and development of specific therapies. To assist researchers searching for such genetic clues, the NIAMS sponsored the development of the National Alopecia Areata Registry, a network of five centers, to identify and register patients with the disease and collect information and blood samples (which contain genes). Data, including genetic information, is made available to researchers studying the genetic basis and other aspects of the disease and disease risk. For more information, log onto the registry website at www.AlopeciaAreataRegistry.org.

More information on research is available from the following resources:

- **ClinicalTrials.gov** offers up-to-date information for locating federally and privately supported clinical trials for a wide range of diseases and conditions.
Website: www.clinicaltrials.gov
- **NIH Clinical Research Trials and You** helps people learn more about clinical trials, why they matter, and how to participate.
Website: www.nih.gov/health/clinicaltrials
- **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.
Website: www.projectreporter.nih.gov
- **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.
Website: www.ncbi.nlm.nih.gov/pubmed

Where Can People Find More Information About Alopecia Areata?

You can get additional information through the following organizations:

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

1 AMS Circle
Bethesda, MD 20892-0001
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
Website: <http://www.niams.nih.gov>

Other Resources

**National Center for Complementary and
Alternative Medicine
National Institutes of Health**

Website: <http://nccam.nih.gov>

National Alopecia Areata Foundation (NAAF)

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

American Academy of Dermatology (AAD)

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

American Hair Loss Council

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

For additional contact information, visit the NIAMS website or call the NIAMS Information Clearinghouse.

Key Words

Acupuncture. A traditional Chinese system of healing in which symptoms are relieved by inserting needles beneath the skin at selected points and then stimulating the points by rotating the needles or exposing them to heat or electrical current.

Addison's disease. A condition that occurs when the adrenal glands (a pair of glands situated on top of the kidneys) fail to secrete enough corticosteroid hormones. Without treatment, the disease can be fatal.

Alopecia areata. An autoimmune, often reversible disease in which loss of hair occurs in sharply defined areas usually involving the scalp or beard, but any area of the body where hair grows can be affected.

Alopecia areata totalis. A form of alopecia areata characterized by the total loss of hair on the scalp.

Alopecia areata universalis. A form of alopecia areata in which all hair on the scalp, face, and body is lost.

Aromatherapy. The therapeutic use of essential oils (highly concentrated aromatic extracts distilled from a variety of aromatic plant materials including grasses, leaves, flowers, needles and twigs, fruit peels, wood, and roots) to promote the health of body, mind, and spirit.

Autoimmune disease. A disease that results when the immune system mistakenly attacks the body's own tissues. Rheumatoid arthritis, systemic lupus erythematosus, and type 1 diabetes are autoimmune diseases ("auto" means self).

Chemotherapy. The use of strong drugs to suppress the immune system. Though originally associated with cancer treatment, chemotherapy is used for many different diseases involving the immune system.

Corticosteroids. Potent anti-inflammatory hormones that are made naturally in the body or synthetically (man-made) for use as drugs. They are also called glucocorticoids. The most commonly prescribed drug of this type is prednisone.

Diabetes. A disease in which the body does not produce or properly use insulin, a hormone that is necessary to convert sugar, starches, and other food into energy.

Evening primrose oil. The oil of a weedy plant containing the essential fatty acid gamma linolenic acid (GLA), which is converted into anti-inflammatory agents by the body. Evening primrose oil is available as a nutritional supplement and touted as a pain and inflammation reliever.

Hair follicle. A small, narrow, tube-like structure in the skin from which hair grows.

Immune system. A complex network of specialized cells and organs that work together to defend the body against attacks by “foreign” invaders such as bacteria and viruses. In some autoimmune conditions, it appears that the immune system does not function properly and may attack the body’s own tissues by mistake.

Pernicious anemia. A potentially dangerous form of anemia, usually caused by an autoimmune process, which results in a deficiency of vitamin B-12.

Rheumatoid arthritis. An autoimmune disease that targets primarily the membrane lining the joints, leading to pain, stiffness, swelling, and joint deformity.

Systemic lupus erythematosus. A chronic autoimmune disease of the connective tissue that can attack and damage the skin, joints, blood vessels, and internal organs.

Topical sensitizers. Medications that, when applied to the scalp, provoke an allergic reaction that leads to itching, scaling, and often hair growth. They include squaric acid dibutyl ester and diphenylcyclopropenone.

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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. 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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