

## Melasma - Darkening of the Skin

### What is melasma?

Melasma is characterized by irregular patches of dark skin on the face. Melasma is skin discoloration (tan, brown, blue or black) found most commonly on sun-exposed areas of the face. These tan or brown patches usually occur symmetrically on the cheeks, upper lip, nose, or forehead and are sometimes mistaken for a suntan. It can also show up on the forearms, but this is quite rare. The symmetry of melasma distinguishes it from other conditions that cause darkening of the skin.

### Who is affected by melasma?

Melasma is a common condition and is found more often in women. Those with darker skin types (including Indians, Hispanics, Middle-Easterners, and North Africans) are more prone to melasma than those with lighter complexions. Melasma can be associated with the female hormones estrogen and progesterone. It is especially common in pregnant women, women who are taking oral contraceptives, and women taking hormone replacement therapy during menopause. Melasma associated with pregnancy is called 'chloasma,' also known as "the mask of pregnancy." Although melasma is most common in women of childbearing age, you don't have to be pregnant or even a woman to have it. It is also found in older women who did not have it during their pregnancies, and up to 10% of cases are dark-skinned men. Melasma doesn't really have a cure.

Sun exposure is strongly associated with melasma. If you are unlucky, it may persist for longer or indefinitely. The good news is that there are treatments that can be done that can minimize the visible effects and keep them at bay. Successful treatment usually begins with the trio of sunblock, bleaching creams and time.

### What causes melasma?

Within a patch of melasma, pigment producing cells (called melanocytes) are increased in number and each melanocyte produces more pigment (called melanin). Increased melanin in the skin leads to the tan or brown coloration.

Sun exposure is said to be the biggest culprit. In the summer, melasma tends to darken after exposure to the sun, fading in winter when the sun is not as harsh. Melanin absorbs the energy of the sun's rays in order to protect the skin, tanning occurs as a result, causing dark areas to get even darker. Melasma occurs more frequently in light brown or bronze skin types from regions of the world with intense sun exposure. As with many beauty concerns like cellulite and acne, genetics plays a major role. More than 30% of sufferers have a family history of it. Skin inflammations from allergic reactions, or waxing of facial hair especially above the lip, can also be a trigger. Some medications can also cause melasma such as the antibiotics tetracycline and minocycline, and some anti-seizure and anti-malarial drugs.

Skin inflammations from allergic reactions, or waxing of facial hair especially above the lip, can also be a trigger, in addition to a predisposition to the affliction. Some medications can also contribute to the cause, such as the antibiotics like tetracycline, oral contraceptives, and some anti-seizure and anti-malarial drugs. Although there are some diseases that cause similar changes in the skin, melasma itself has no association with internal disease.

### **What are the symptoms of melasma?**

Melasma has no associated symptoms. As a rule, any persistent, unexplained darkening or lightening of the skin should be looked at by your doctor.

### **How is the diagnosis of melasma made?**

Your physician can usually diagnose melasma based upon the appearance of your skin. The first step is to determine the cause. A complete medical history and a proper physical examination including evaluating the skin under a Wood's lamp may be performed. Diagnostic tests, including thyroid function tests and skin biopsies, may also be done. The next step is to eliminate the cause, if possible. For example, if the cause is the medication you are taking, discontinuing it may result in a clearing, but melasma is not always that simple. The pigment may be located in the epidermis or the skin's outer layer, the dermis or the deeper layer, or a combination of both. The more superficial it is, the easier it will lighten. In general, melasma that is more recent will respond better to treatment.

### **What treatment options are available?**

The best treatment for melasma is prevention. The key to preventing melasma is sun avoidance and daily sunscreen use. However, for most of us, it is too late for prevention, and there are a number of treatment options available.

#### **Bleaching Creams**

Over-the-counter creams contain 2 percent hydroquinone, a bleaching agent. Prescription creams may use single agents, such as Retin-A (tretinoin) or combinations of medications such as hydroquinone with tretinoin plus a cortisone cream. Over the counter bleaching creams are usually well tolerated and may gradually lighten melasma over a couple of months. However, they are not very effective. Prescription formulations are often more effective but may have more side effects (such as redness, drying, and peeling) and are expensive. Creams may not work for everyone and the risks and benefits need to be discussed with your physician. Skin lightening is not a quick process. Depending upon how dark the area is compared with your normal skin tone, it can take six months to one year to see results. Non prescription lightening creams can go only so far in improving the appearance of melasma. If you are seeking more dramatic improvement, you may have to look to more invasive remedies performed mostly by dermatologists and plastic surgeons.

#### **Chemical Peels**

Superficial glycolic peels, trichloroacetic acid peels (TCA), microdermabrasion, and intense pulsed light treatments are the most common methods used to even out skin pigment. These treatments tend to be more risky for darker skin types.

Your physician can administer a peel using a variety of different chemicals to remove age spots, melasma, freckles, wrinkles, and fine lines. Chemical peels may smooth and firm the skin and may lighten dark areas gradually. The superficial peels, such as a glycolic acid peel can be done during your lunch hour, and there is no recovery time. Deeper peels are more effective but require longer recovery. See more details under discussion chemical peels.

Different kinds of peels carry different risks. Superficial peels are usually quite safe. However, you may need a series of superficial peels (done approximately once a month) before you'll notice improvement. Costs can add up if you choose a series of peels. The risks and benefits vary depending on the kind of peel and need to be discussed in detail with your physician.

## **Laser Resurfacing**

Laser resurfacing is an in-office treatment where age spots, melasma, wrinkles, and fine lines are “burned” off with a laser. Laser resurfacing can remove most age spots, melasma, and wrinkles, often in just one treatment. Some lasers, such as the fractionated CO2 laser are considered the gold standard in terms of facial rejuvenation. With good sun protection, the effects can last up to five years.

Lasers actually remove the outer portion of the skin- called the epidermis. Because of this, you may experience some pain as well as redness and peeling. You may even form scabs in the days after the procedure. Expect recovery time of at least a week. Laser therapy is also expensive. One treatment can cost anywhere from \$1,000 to \$5,000, depending on how much of your face is treated. The risks and benefits of laser resurfacing need to be discussed in detail with your physician.

## **Intense Pulsed Light Therapy (IPL)**

IPL is one of the newer forms of facial rejuvenation. Unlike lasers, which use intense, focused light, IPL is intense broadband light. Although IPL delivers energy to both the superficial and deep layers of the skin, the epidermis is spared from damage. Thus, there is virtually no recovery time. In the studies that have been performed so far, IPL can smooth the skin and fade age spots, freckles, melasma, and even broken blood vessels. Improvements usually last for about a year with good sun protection. IPL is safer than laser therapy because IPL does not damage the epidermis. There may be some mild discomfort during the procedure but no recovery time. Unlike laser therapy, however, you may need multiple treatments (average is 4-6, at three weeks intervals) to get the full benefit. The cost is variable, but is usually more expensive than peels and less expensive than lasers. The risks and benefits of IPL therapy need to be discussed in detail with your physician.

## **How long does melasma last?**

Left alone, and not intensified by sun exposure, melasma tends to stay around for less than a year. Impacted skin cells with the discoloration are “surface” cells, and melasma becomes “permanent” if the discolored area splits, allowing these hyper-pigmented cells to go deeper into the skin layers. When the discolored cells with melasma are settled within your deeper dermal tissue levels, they resist conventional treatments.

## **Tips to remember**

Rule number one is that nothing will be effective if you are still trying to tan, because this completely reverses the process and re-pigmentation will start again. The most important lesson to learn to avoid brown patches is to wear sunscreen with a minimum SPF15 all day, every day, year-round. Even incidental exposure such as through your car window on an overcast day can exacerbate melasma. The most effective sunscreens, including zinc oxide and titanium dioxide, should be applied every two hours and not just once in the morning. Consider SPF in your moisturizer and foundation as just icing on the cake. It is not enough to protect you all day long. Minimizing sun exposure can prevent darkening of existing dark patches, as well as the appearance of new areas. This is especially important for women who take birth control pills or hormone supplements or for past melasma sufferers.

Hydroquinone 4% is widely considered the most effective skin lightening agent. Don't self-treat. Some prescription bleaching formulas are marketed to consumers via the Internet, but these should only be used under medical supervision and can cause severe reactions on certain skin types. Lightening agents like kojic acid, derived from fungal or mushroom plants, are often combined with other ingredients like azelaic acid, glycolic acids, lactic acid, retinol, ascorbic acid, and botanical lighteners such as licorice extract and bearberry extract.

Most skin lightening ingredients work better in tandem than on their own. For example, glycolic acid helps draw lightening agents into the skin better.