



## Understanding and treating hyperpigmentation

**P**igmentation is the natural self-defence mechanism of the skin. Therefore, it isn't safe to remove all pigment (de-pigmentation) with a prolonged use of a chemical ingredient such as hydroquinone, as to do so will create an unnatural-looking mask effect (similar to Michael Jackson) and the process is totally irreversible.

It's important to know how to recognize hyperpigmentation, also known as melasma. The excess pigment can be visually localized to the epidermis or the dermis by use of a Wood lamp (wavelength, 340–400 nanometres). Epidermal pigment is enhanced during examination with a Wood light, whereas dermal pigment is not. Dermal pigment is very difficult to treat; however, 70 percent of the population has hyperpigmentation spots on the epidermis.

# Spotless

## Causes

A major factor in the development of melasma is exposure to sunlight. Other causes include the following:

### 1. Hormonal imbalance

**Pregnancy:** This condition can cause what is often called the mask of pregnancy, also known as chloasma. It is recommended not to treat this type of hyperpigmentation for up to six months after delivery, since melanocyte-stimulating hormones will decrease and pigment spots will often fade away.

**Endocrine disease:** Visible signs of endocrine disease include hair on the chin and on the breasts, thickening of the keratinous layer, and a thicker and greyer skin. If in doubt, ask your client to consult an endocrinologist and to ask for a blood test.

**Oral contraceptive pills:** Pigment spots may occur on women exposed to ultraviolet radiation (sunlight) while using oral contraceptive pills.

### 2. Genetic predisposition

Some people are more prone to the development of melasma, such as those with a bilious morphology. People who live in regions of the world with intense sun exposure and who have light brown, yellow or olive skin are also more prone to melasma.

### 3. Stress

There seems to be a link between melasma and stress. The latter may destabilize the pigmentation system and cause the melanocytes to over-produce pigment.

### 4. Medication

Phototoxic and photo-allergic medications (such as antibiotics like tetracycline) have been reported to cause melasma in some instances. The same applies to chemotherapy and radiotherapy treatments. After the treatments, the hyperpigmentation normally fades away over a period of about six months.

## 5. Vitamin malabsorption

People with a bilious or nervous morphology tend to have trouble absorbing through their intestinal walls the vitamins (especially the B complex) and minerals necessary to perform melanogenesis (the production of the pigment melanin, responsible for skin colour).

## 6. Laser treatments

Certain types of laser, particularly the alexandrite laser, may cause hyperpigmentation, especially in people with darker skin.

## 7. Cellular hypertoxicity

Cellular hypertoxicity may be caused, for example, by the topical application of a synthetic perfume followed by exposure to sunlight. This condition may develop into melasma. The same applies for some essential oils.

Hydroquinone, a very effective skin-bleaching agent, is extremely toxic for the cells of the entire body. The damage it creates is irreversible. Hydroquinone can be found in the liver, and certain studies claim that it may cause skin cancer. French-speaking countries in Europe forbid its sale and distribution.

AHAs with a very low pH (3.5 and less) and a high concentration (10%) may also cause long-term cellular hypertoxicity if used regularly (more than six months).

### Treatments

The first step is to correctly identify the type of epidermis melasma in order to treat it appropriately and get the best results from the treatment. There are two effective treatment modes you can use: products and equipment. Exfoliation can fade some pigment spots, but the spots will return with sun exposure.

In terms of equipment, IPL (Intense Pulsed Light) is to be used under medical supervision. With this type of treatment, pigment spots disappear within three to five sessions of 10 to 20 minutes each. Photo rejuvenation (using Intense Pulsed Light) is the most common method used to treat hyperpigmentation in North America.



For estheticians, LED light (525 nanometres) also provides spectacular results. Five to 12 treatments are necessary to treat pigment spots.

As for products, a plant-based lightening treatment can be used during IPL or LED therapy, but be aware that most plant-derived products cannot penetrate deep enough to reach the melanocytes because the molecules of these products are too large. Melanocytes are located at the bottom of the epidermis, in the stratum germinativum. To provide results, a product must reach the melanocytes in order to inhibit or regulate the tyrosinase, an enzyme responsible for the activity of the melanocyte system. The product needs to do the same as hydroquinone but without the toxic effects.

Plants or plant-based substances that are capable of lightening the skin include the following:

- Licorice
- Birch
- Scutellaria baicalensis
- Mulberry
- Beta carotene
- Sanguisorba officinalis
- Bearberry

Exfoliation or microdermabrasion is also recommended to remove dead skin cells and promote the penetration of the product's active ingredients. But most of all, one needs patience and daily skin protection from sunlight during and following a lightening therapy.

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