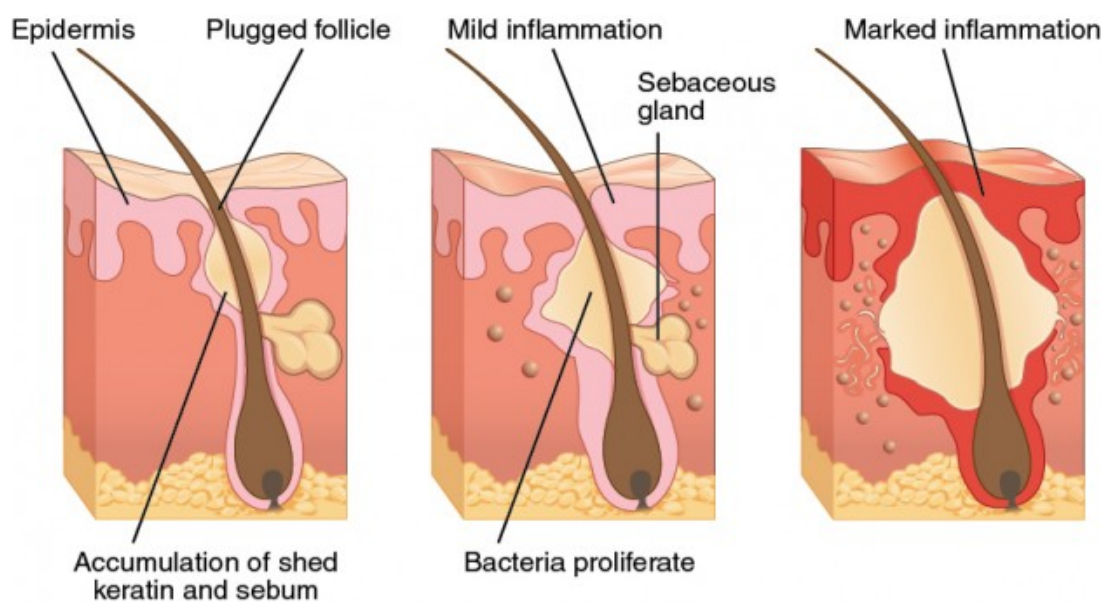


## Sebaceous Gland Disorders: Sebostasis, Seborrhea, Acne Vulgaris, and Co.

[See online here](#)

There are many disorders of the sebaceous glands. Acne is the most relevant condition in the field of dermatology that is tested in medical examinations. Acne vulgaris is also considered 1 of the most common skin diseases. The clinical picture of these conditions as well their treatment is covered in this article.



## Overview of Sebaceous Glands



Image: Hair root with sebaceous gland (oil gland). By Don Bliss.  
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Sebaceous glands (*glandula sebaceae*) are microscopic exocrine glands on the skin that secrete sebum. They are found in almost all areas of the body except the palms and sole of the feet. However, the head, face, back, and upper body are rich in sebaceous glands. The glands produced tallow, also referred to as sebum, which consists of triglycerides, fatty acids, and wax esters. Androgen hormones stimulate the production of sebum from these glands.

## Nevus Sebaceous Glands (Nevus Sebaceous)

The nevus sebaceous gland is also called organoid nevus and consists of sebaceous glands, ectopic glands, and malformed hair follicle residues.

## Epidemiology

Nevus sebaceous occurs at an early age but is usually inherited. Its occurrence is not caused by sexual or racial predilection.

## Clinical features of nevus sebaceous



[Image](#): Nevus sebaceous on the scalp. By Phrontis. License: [CC BY-SA 3.0](#).

Nevus sebaceous presents as a flat, white-yellowish, waxy tumor without hair and most frequently occurs on the scalp where it can cause alopecia to develop. Nevus sebaceous glands occur mostly as solitary lesions on the face and neck. In young children, maternal hormones may lead to an increase in growth, while during puberty, hormones lead to a verrucous appearance.

In old age, the nevus may evolve into a benign or malignant adnexal tumor. The most common one is trichoblastoma.

## Treatment of nevus sebaceous

Ablative techniques (i.e. cryotherapy) are proven treatment methods. In cryotherapy, low temperatures are usually used locally to destroy pathologic tissue.

Medical therapy (i.e. photodynamic therapy) uses topical aminolevulinic acid.

Surgical therapy (i.e. excision of nevus sebaceous) can be performed for cosmetic reasons or even to avoid complications such as the development of tumors; therefore, the risk of malignancy must be assessed. Adolescent tumors are almost always excised because most have a verrucous appearance that may suggest malignancy.

## Sebostasis

Sebostasis means a reduction in the activity of sebaceous glands. The result is dry skin (*xerosis cutis*) and brittle hair.

## Etiology of sebostasis

Sebostasis is age related and has an occurrence of about 80% in older people.

Mechanical or chemical degreasing, such as frequent washing or very dry hair, can also cause sebostasis.

## Clinical features of seborstasis

The clinical symptoms show a scaly, rough skin and the patient often experiences itching and an unpleasant tightness of the skin.

Dry skin often leads to barrier disorder, with resulting secondary inflammation and superinfection by bacteria. Consequently, the skin cracks and forms **eczema craquele**, also called drying eczema or asteatotic eczema.

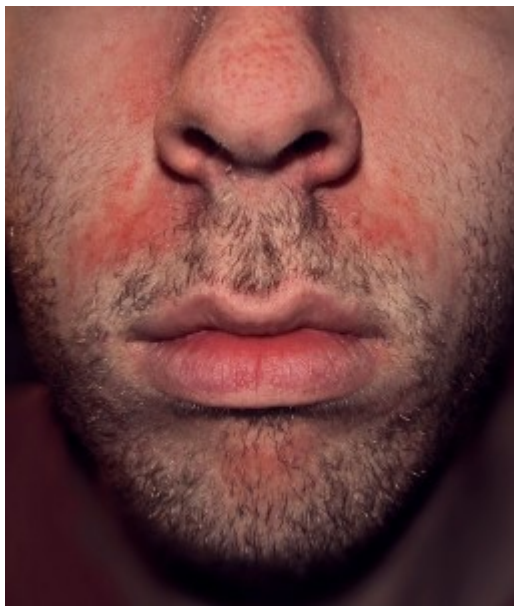
Typical symptoms of seborstasis are brittle and scruffy hair.

## Treatment of seborstasis

Consistent anti-sebostatic cleaning that serves as a prophylactic treatment is recommended. It is necessary to maintain the skin regularly with fatty externa, special fatty acids, and urea.

The patient should shower, if possible, only briefly under warm, but not hot, water. Alcoholic lotions must be avoided, because their use can cause skin to dry out.

## Seborrhea



[Image](#): Seborrheic dermatitis. By Roymishali. License: [CC BY-SA 3.0](#).

Seborrhea means 'tallow flow' and refers to a strongly increased sebum production, which leads to oily skin and greasy, lank hair. Seborrhea is often a predisposition for acne, rosacea, and seborrheic eczema.

## Etiology of seborrhea

In 80% of cases, seborrhea occurs at adolescence. This suggests that hormonal changes play a decisive role. An **increase in androgen production** and a higher density of androgen receptors are responsible for sebum production. Thus, hormonal medications, such as anabolic steroids or contraceptives, can affect sebaceous glands.

Systemic diseases such as [Parkinson's disease](#), [acromegaly](#), or polycystic ovarian

syndrome go hand in hand with seborrhea.

## Clinical features of seborrhea

A greasy shine of the face, scalp, and hair are the consequence of increased sebum production. At times, large pores are visible.

An increase in lipid secretion favors the conditions for *Propionibacterium acnes* and yeast fungi (e.g., *Malassezia furfur*) to propagate.

## Treatment of seborrhea

Prophylactic anti-seborrheic skincare is recommended. For cleaning and care, disinfectants (e.g., benzoyl peroxide) and soap-free synthetic detergents, as well as low-fat externa (lotions and gels) can be used.

Topical and systemic retinoids are anti-inflammatory and work against abnormal keratinization. In severe cases of acne, the use of oral retinoids, such as isotretinoin, are proven to be highly effective.

**Note:** Retinoids are teratogenic and contraindicated in pregnancy. Women can use systemic anti-androgens to treat seborrhea. Topical application of estradiol for men can lead to systemic side effects.

## Acne vulgaris

Acne is a common chronic inflammatory disease of the pilosebaceous unit (sebaceous glands and hair follicles). Acne is identified, depending on the shape and characteristics, by comedones, pustules, or papules. Areas rich in sebaceous glands such as the face and scalp, as well as the back and chest, are particularly affected.

Vulgaris means 'common.' Thus, acne vulgaris refers to the most common form of acne to differentiate it from other forms of acne. Frequently, acne vulgaris occurs in individuals over 12 years of age.



**Image:** Pubertal acne in a young boy. License: Public domain.

**Note:** Some 65% of young people suffer from acne.

## Etiology of acne vulgaris

In most cases, acne vulgaris appears with the beginning of puberty. By the end of the third decade of life, this skin disease usually ends by itself. Boys and girls are affected to the same extent. Typical for girls is a deterioration of the condition before and during menstruation.

**Note:** For young people, the disease can have a psychologic stressful effect. Acne often leads to a feeling of distortion. The typical comedones ('blackheads') are the result of a faulty tallow drain in the closure of the follicle's excretory ducts.

Androgens enlarge sebaceous glands and increase their activity. This may, as already described, lead to seborrhea.

The increase of sebum production and, thus, an increase in bacteria such as *P. acnes* result in a bacterial superinfection. The bacteria split the fat into free fatty acids, which induce the secretion of pro-inflammatory mediators and lead to an inflammatory response.

Nicotine abuse leads to phospholipase-induced inflammation.

## Clinical features of acne vulgaris

The clinical picture of acne vulgaris shows in particular comedones, papules, and pustules and in severe forms of acne, the formation of scars.

## Acne vulgaris can be divided into three stages

### 1. Non-inflammatory stage

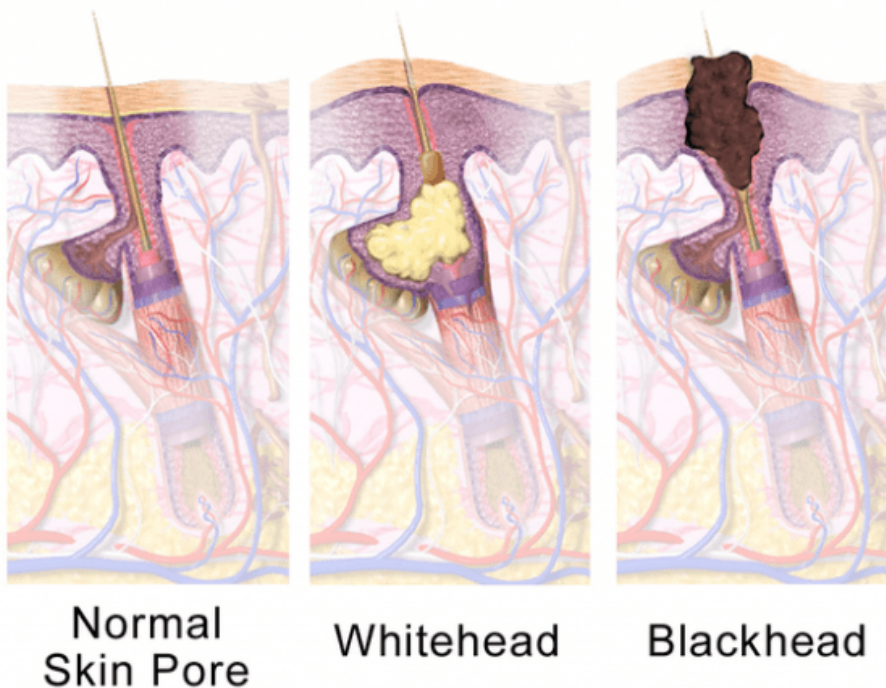


Image: Acne. By Bruce Blaus. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/).

Here, we find **acne comedonica**, which appears centropacially and is characterized by

open (blackhead) and closed (whitehead) comedones.

## 2. Flammable stage

The clinical picture of **acne papulopustula** includes pustules and papules. The face, back, and upper torso are also affected. **Acne nodosa** forms up to 1-cm large knots that decline very slowly. The next stage is either acne conglobata or a transition to the defect stage. **Acne conglobata** is the most severe form of inflammatory acne and appears as deep, inflammatory nodes in the face, chest, and back. This form is especially common in young men.

## 3. Defect stage

Acne comedonica and papulopustulosa usually heal without scarring. In the defect stage, scars, cysts, and abscessed fistula tracts are typically noted.

# Treatment of acne vulgaris

To prevent exacerbation of chronic acne and scar formation, a stage-related treatment of acne vulgaris is necessary. The following forms of therapy should be considered:

- **Topical therapy:** Used in cases of papulopustulosa or acne comedonica; benzoyl peroxide (BPO) 5–10% can be used as a washing suspension to clean the skin.

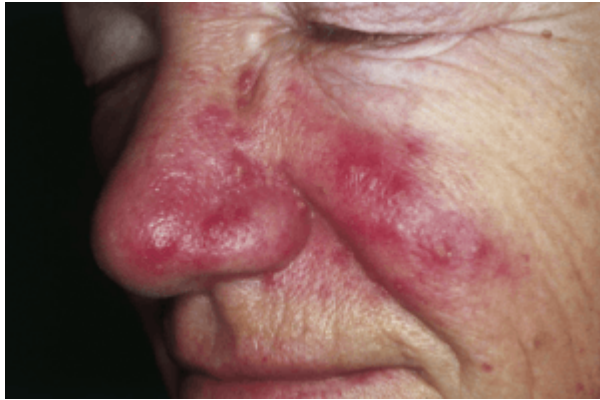
Topical retinoids, such as adapalene and isotretinoin are effective. However, retinoids work well with teratogens. Therefore, there are special considerations for women of childbearing age. Oral contraception—1 month before the treatment and up to 1 month after treatment—plus additional contraceptive methods (condoms) are necessary. Clindamycin alone or in combination with benzoyl peroxide, as well as topical antibiotics, can be used.

- **Systemic therapy:** Used against pustulosa or acne conglobata. Systemic treatment methods such as tetracyclines, hormones (contraceptives with anti-androgenic effect), and retinoids are considered.
- **Peelings, etc.:** Peelings with fruit acids can have supportive effects. Also, treatment with dermabrasion or hyaluronic acid injection can reduce acne scars.

## Special forms of acne

- **Acne neonatorum:** This is already present at birth or occurs in the first few weeks of life. The sebaceous glands are stimulated by maternal androgens.
- **Acne infantum:** This is typical in the third to sixth month of life due to the influence of testosterone.
- **Acne exocrina:** This is a surface ulceration caused by constant manipulation and excoriation.
- **Acne tarda:** This is acne that occurs after puberty due to androgen effects. Hormonal disorders must be excluded.
- **Acne venenata:** This might develop through contact with tar, oils, halogens (chlorine), or cosmetics.
- **Acne aestivalis (mallorca acne):** This arises in a warm, humid climate in combination with the application of oily sun creams.

# Rosacea



**Image:** Rosacea. Erythema and telangiectasia are seen over the cheeks, nasolabial area, and nose. License: [CC BY 2.0](#).

Rosacea is a chronic inflammatory, noninfectious disease of the sebaceous glands and connective tissues. It has a relapsing course in the central facial area. In contrast to acne, rosacea forms **no comedones**.

## Etiology of rosacea

So far, the etiology of this disease is largely unexplained. But there are certain known factors that appear to deteriorate rosacea. Ultra-violet (UV) exposure, hot drinks, alcohol, spicy food, hormonal influences, and temperature changes can affect disease activity.

## Clinical features of rosacea

- Stage 1: Rosacea is characterized by a flat redness on the face—the **flush**. In addition, telangiectasia and persistent erythema are present.
- Stage 2: Facial pustules and papules partially exceed the forehead's hairline.
- Stage 3: The rhinophyma is a tuberous hypertrophy of sebaceous glands in the nose.

## Diagnosis of rosacea

For the diagnosis of rosacea, it is crucial to know the typical clinical picture. Ophthalmic rosacea occurs in up to 50% of cases and should, therefore, be excluded.

## Treatment of rosacea

Particularly relevant for the treatment of rosacea is the avoidance of aggravating factors.

Stage 1 is treated with 0.75% metronidazole-containing externa. Stage 2 combines the therapy of stage 1 with a systemic antibiosis (doxycycline) or retinoids (low dose) over the course of several weeks. Rhinophyma can be treated using operational or laser surgical resection.

## Perioral dermatitis

Perioral dermatitis is an inflammatory [skin](#) disease that presents with facial rash and bumps around the mouth. It appears in perioral and periocular regions due to **excessive**

**skin care.** This dermatosis mostly affects young women, who represent 90% of the cases, but it can also affect older women. In some cases, lesions may develop around the ears, eyes, or nose.

## Etiology of perioral dermatitis



[Image:](#) Perioral dermatitis in a child who had a habit of licking the lips. By James Heilman, MD. License: [CC BY-SA 4.0](#).

The etiology of this disease is still unclear. Factors that can trigger perioral dermatitis are excessive cosmetic care, the use of external corticosteroids, fluoridated toothpaste, soaps, and being exposed to stressful situations and hormonal disturbances.

The result of excessive care could lead to swelling of the horny layer, which disrupts the skin barrier and creates room for superinfections. Topical glucocorticoids often reinforce this effect.

## Clinical features of perioral dermatitis

Small, bound follicular papules and pustules appear around the mouth and eyes. Burning and the feeling of skin tension are also typical symptoms.

## Treatment of perioral dermatitis

The treatment of perioral dermatitis is '**zero therapy**.' This treatment means that the patient should avoid all external causes of the condition. Initially, it usually progresses to a deteriorated condition in the first 2 weeks. For patients with the habit of using cosmetics, zero therapy is often very difficult to achieve. The patient should be informed about probable deterioration.

Oral or topical antibiotics may be considered for very severe cases with superinfection.

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