



## Over-the-counter treatment of acne

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### Introduction

Acne is a common skin condition where the pores of the skin become blocked by hair, oil, bacteria and dead skin cells. These blockages may produce pimples, including blackheads, whiteheads, and nodules. Treatment is considered according to the severity of the disease. Acne frequently affects teenagers, but can occur at any age.

### Symptoms

Acne lesions usually appear on areas of the body which are rich in oil or 'sebaceous' glands, including the face, forehead, chest, shoulders and upper back.

- **Whiteheads** are closed plugged pores.
- **Blackheads** are open pores that are congested with excess oil, dead skin and bacteria. This turns brown when exposed to the air.

Blackheads and whiteheads are known as comedones and are the primary lesions of acne.

- **Papules** occur when the hair follicles have become inflamed and infected with bacteria. They present as small, tender, red bumps.
- **Pustules** are pimples containing pus at their tips.

Papules and pustules cause inflammatory acne and can cause scarring if picked or scratched.

- **Nodules** are recognised as solid, large, painful lumps under the skin.
- **Cystic lesions** are pus-filled lumps under the skin, which can lead to scarring.

Nodular cystic acne may reflect any of the above features, but also includes cysts and nodules which are under the skin.

### Severity

Acne may be categorised according to severity.

- **Mild acne (Grade 1):** mostly whiteheads and blackheads are present, with a few papules and pustules.
- **Moderate acne (Grade 2):** multiple papules and pustules are seen, mostly on the face.
- **Moderately severe acne (Grade 3):** numerous papules and pustules are present, and sometimes the nodules may be inflamed. The back and chest may be affected.
- **Severe nodulocystic acne (Grade 4):** many large, painful and inflamed nodules and pustules are seen.

### Causes

Acne is largely a hormonal condition that is driven by androgen hormones. These hormones become active in both boys and girls during adolescence and cause the oil (sebaceous) glands to enlarge and over-produce sebum. The resultant plugging of the hair follicles by oil and dead skin leads to the formation of comedones.

### Risk factors

These include:

**Age.** Although acne occurs in people of all ages, it is most common in teenagers.

**Friction or pressure on the skin.** This can be caused by items such as sports helmets, hats, tight collars, backpacks.

**Air pollution** and certain weather conditions, especially high humidity.

**Oily or greasy substances.** This includes using oily skincare preparations, and coming into contact with grease in the workplace, such as a restaurant where there is frying oil and greasy food surfaces.

Acne may also be triggered by:

- **Hormonal changes.** These changes are common during puberty or pregnancy, and also occur at the time of the female menstrual cycle, or hormone changes during midlife.

- **Some medications**, including corticosteroids, testosterone and lithium.
- **Diet.** Certain foods including carbohydrate-rich foods, such as bread and chips have been associated with exacerbating acne.
- **Genetic disposition.**
- **Stress** may make existing acne worse.

## Myths

The following factors have little effect on acne:

Eating **chocolate** or greasy food.

**Hygiene** – dirty skin does not cause acne. Using soaps or chemical agents or scrubbing the skin too hard may irritate the skin and exacerbate the condition.

The use of **cosmetics** does not necessarily make acne worse, particularly if oil-free products are used and make-up is removed regularly.

## Complications

All forms of acne can cause **scars**. Scarring occurs when acne penetrates the skin and damages the deeper layers. Scars appear as pitted skin (acne scars) and thick scars (keloids), which can remain in place long after the acne has cleared.

**Skin discolouration** may persist in the affected area after the condition has cleared.

Depending on its severity, acne can be the cause of emotional stress, including depression.

## Treatment

The objective of treatment is to control the acne, avoid scarring, and render scars less noticeable. Treatment of acne should be directed by the severity of the condition. The response to treatment may be slow (6–8 weeks), and it may be necessary to continue treatment up to six months.

Mild acne often responds to over-the-counter (OTC) treatments. Various preparations are available including gel, cream, lotion, and wash formulations. To enhance the efficacy of these agents, the skin should be washed with a mild soap or cleansing agent before application of treatments.

## Benzoyl peroxide

The main action of this agent is keratolytic, and it promotes shedding of the outer layers of the skin and helps it to peel. It has antibacterial and weak anti-comedogenic action, and is a first-line OTC treatment for reducing both inflamed and non-inflamed lesions. Regular application can result in improvement of mild acne.

During the first few weeks of treatment, redness and scaling may occur, and treatment should be initiated with 2.5–5% preparations before moving gradually to higher concentrations as necessary. To help reduce the amount of sebum on the skin, the skin should be washed with a mild soap and rinsed off with water before applying benzoyl peroxide. Gels may be preferable on oily skin, and creams may be recommended for dry skin.

Benzoyl peroxide acts by preventing the formation of new lesions, rather than shrinking existing ones. Therefore, this agent should be applied to the whole of the affected area, not only to the individual comedones.

Patients should be informed of the irritant side effects of benzoyl peroxide to prevent the discontinuation of treatment inappropriately. Soreness and redness of the skin usually subside if the treatment is temporarily discontinued, and become less severe with continued use of the agent. With this in mind, the following approach could be considered in order to minimise skin irritation.

- Initiate treatment with the lowest strength of preparation and apply this infrequently and sparingly during the first week of treatment.
- Thereafter, apply the product once a day or on alternate days for a week, and then increase the frequency of application to twice a day.
- After two to three weeks, a higher strength preparation could be considered.
- Use of the product should be discontinued if skin irritation is severe, or does not improve after a week.

Patients should be advised that benzoyl peroxide should be kept away from the eyes and mouth, and that it may bleach fabrics and hair.

**Salicylic acid and sulphur** are second-line keratolytic agents used in the treatment of acne.

Preparations containing low concentrations of **salicylic acid** may be useful in some patients with comedonal acne. Side effects include allergic contact sensitivity reactions, and skin discolouration. This agent should not be used for longer than three months.

**Sulphur** acts as an antiseptic and mild antimicrobial and may be used in combination with other kerolytic agents such as salicylic acid or benzoyl peroxide.

**Azelaic acid** is suitable for treating mild to moderate acne. Adverse effects include local skin irritation. Frequency of application should be reduced if the irritation persists. It is generally applied twice a day to clean skin. If the skin is sensitive, the agent may initially be applied daily and gradually increased to twice a day. Improvement after treatment with this agent may be apparent after four weeks.

## Alternative medicine

Some alternative medicine approaches might be helpful in reducing acne:

- **Tea tree oil.** Although this agent works slowly, gels containing at least 5% tea tree oil may be helpful for treating acne. Side effects of tea tree oil include burning, redness, dryness and minor itching.
- **Brewer's yeast.** A strain of brewer's yeast called Hansen CBS may help decrease acne when taken orally.

## Lifestyle and home remedies

Prevent or control mild to moderate acne with OTC preparations and good basic skin care.

- Using warm water, wash affected areas twice a day with a gentle cleanser or mild soap. Shampoo oily hair, and shave affected skin gently.

- Avoid products such as astringents, facial scrubs and masks since these may irritate the skin and exacerbate the acne. Frequent washing and scrubbing of the skin should be avoided.
- Moisturise the skin routinely. Use creams rather than ointments or gels since they are less irritating on the skin.
- Irritants such as oily or greasy cosmetics, acne concealers, sunscreens and hairstyling products can aggravate acne. Products that are labelled as non-comedogenic or water-based are preferable, and make-up should be removed daily.
- Avoid friction or pressure on the skin from items such as backpacks, phones, tight collars and helmets.
- Avoid touching or picking acne-prone areas since this can lead to infection or scarring.

Although OTC acne medications may cause initial side effects such as scaling, redness and dryness, this often improves after the first month of use, and treatment should not be abandoned.

### See a doctor if

- Mild acne has not improved within eight weeks of OTC treatment.
- Existing medications are thought to have caused the acne.
- Severe emotional stress occurs.

If necessary and for moderate to severe acne, a **dermatologist** should be consulted.

## Conclusion

Acne is a condition that can be persistent. Up to six months of treatment may be required for maximum benefit, and patients should be encouraged to persevere with treatment. Depending on its severity, acne can cause scarring of the skin and severe emotional stress. Treatment should be started as early as possible to lower the risk of such complications. If appropriate OTC measures do not alleviate the condition, a health care professional should be consulted.

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