



Treatments for Psoriasis: An overview



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Psoriasis and Psoriatic Arthritis Alliance

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What are the aims of this leaflet?

This leaflet has been written to help you understand the treatments that are currently available to treat psoriasis. The leaflet is not designed as a replacement for your doctor's advice and we aren't recommending any single treatment in preference to any other; the best treatment schedule is the one which you and your doctor have agreed is most suitable for your particular situation.

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About psoriasis and psoriatic arthritis

Psoriasis (sor-i'ah-sis) is a long-term (chronic) scaling disease of the skin which affects around 1 in 50 people, which is about 1.3 million, or around 2% of the UK population. It usually appears as red, raised, scaly patches known as plaques. In people with skin of colour, the redness is less pronounced, and psoriasis may appear as violet or darkened areas of skin. The plaques therefore may appear darker, brown or as purple patches with grey scales. Any part of the skin surface may be involved but the plaques most commonly appear on the elbows, knees and scalp. Nail changes, including pitting and ridging, are present in nearly half of all those who have psoriasis.



For those that have psoriasis around 1 in 4 may develop an associated psoriatic arthritis (PsA), which is about 325,000 people, or around 0.5% of the UK population. PsA causes pain and swelling in the joints and tendons, accompanied by stiffness particularly in the mornings. The most commonly affected sites are the hands, feet, lower back, neck and knees, with movement in these areas becoming severely limited. For more detailed information, see our leaflets **What is psoriasis?** and **What is psoriatic arthritis?**

Although there is no cure for psoriasis, it can be controlled and go into remission. Not all people will be affected in the same way and doctors will class the condition as mild, moderate or severe.

Please note: The treatments are listed alphabetically and not in order of use or preference. The list is for reference only and you should always follow your healthcare provider's advice. In some cases you may be offered more than one medication in combination.

Antifungals

Antifungal agents in psoriasis care are typically used to treat seborrhoeic dermatitis (a flaky white yellowish skin condition) and scalp psoriasis. They can also be used in areas where psoriasis involves folds in the skin, where there's an increased potential for localised infection.

They remove the yeast fungus (*pityrosporum ovale*, also known as *malassezia*), which has been linked to conditions such as dandruff and scaly scalp. Some commonly used anti-dandruff shampoos claim to be effective against these microbes.

Prescribed antifungal treatments can be used alone or in combination with topical corticosteroids, antibacterial treatments or both. They are sometimes incorporated into a treatment regime to prevent fungal skin infections. See our leaflet **Scalp Psoriasis**.

Antihistamines

This is a group of medications used to relieve itching, which can be a problem for some people with psoriasis. They work by blocking the release of histamine. Histamine, when released in excess, is the principal cause of both inflammation and allergic symptoms. By suppressing or reducing histamine you can reduce the itch and the potential damage to the skin from scratching; this mechanical damage keeps the inflammatory process going and can increase the potential for localised skin infections. Itching can disturb sleep and lower self-esteem.

Biologic agents

Biologic agents are made from biological (human or animal based) proteins rather than artificial chemicals, much in the way that insulin was made from animal sources in the past. Biologic agents are different from other psoriasis medications in that they are designed to block the condition in the immune system rather than waiting to treat the symptoms of the disease.

It is thought that overactive cells in the immune system set off a series of events in the body, eventually causing psoriasis to develop on the skin surface, with skin cells piling up and inflammation at the base. Biologic agents work by blocking the action of specific immune cells that cause these cells to misbehave, by either reducing the number of these cells in the skin and blood or by blocking the activation of the immune cells or the release of chemicals from them.

Biologic agents target overactive cells in the body. Some target a type of immune cell called a T cell, while others target the chemical messages they release.

In psoriasis, certain T cells are mistakenly activated, producing TNF-alpha (tumour necrosis factor alpha) in excessive amounts, and move into the skin. Once in the skin they begin to act as if they are fighting an infection or healing a wound; the messages the TNF-alpha communicates leads to a rapid growth of skin cells – much faster than normal. This overproduction is what causes cells to pile up at the skin's surface. Some biologic agents act by preventing the activation and/or migration of T cells, by reducing the number of psoriasis-involved T cells in the body, or both.

For those prescribed one of these treatments, there is a certain level of commitment required as biologic agents need to be stored correctly (in a refrigerator between 2°C and 8°C). Regular and frequent monitoring, such as blood tests, are also required. Biologic agents are given by injection. Once educated and instructed on how to self-inject, most people are able to manage this on their own, but a nurse service is often available to help some individuals.

The long-term safety of biologic agents has not yet been established. As a result they are not considered first-line therapy. There is a pathway criteria outlined by The National Institute for Health and Care Excellence (NICE) so that patients can access biologic agents after they have tried phototherapy and other systemic therapies such as treatments taken orally.

Coal tars

Coal tar therapy has been used for more than a century in dermatology. It is a topical (applied to the skin) treatment mostly used for acute (short-term) scalp psoriasis. It has anti-inflammatory and anti-scaling properties that are

useful in treating chronic plaque psoriasis. Crude coal tar (coal tar BP, a standard formulation) is the most effective form, typically in a concentration of 1% to 10% in a soft paraffin base, although few people with psoriasis can tolerate the smell and mess.

Cleaner extracts of coal tar included in brand-named products are more practicable for home use, but they are less effective and improvement takes longer.

Contact of coal tar products with normal skin is not usually harmful and they can be used for widespread small lesions; however, irritation, contact allergy, and sterile folliculitis (pus filled spots at the base of the hair) can occur. The milder tar extracts can be used on the face and skin folds. Tar baths and tar shampoos are also helpful and some of these products can be purchased over the counter without a prescription.

Coal tar has also been used in combination with ultraviolet B light in hospitals. It was formulated by American dermatologist William Goeckerman in 1925 and is known as the Goeckerman method. Some hospital day-units still use tar products in the bath prior to treatment.

Combination therapies

Sometimes clinicians will prescribe a product containing one or more active ingredients with different functions. This may be in order to simplify the number of treatments being applied at any one time or because the active agents are more effective when combined. There are a large number of possible combinations. In some instances these may be referred to as 'specials', referring to the formulation of any medicine judged to be essential to meet the patient's 'special clinical need'. These must be made by a specialist pharmacist, are quality assured with a short life span and can be costly.

Dithranol

Dithranol has been used for more than 100 years in the treatment of psoriasis. It is a chemical of plant origin, taken from the bark of the South American araroba tree.

Dithranol in Lassar's paste (a salicylic acid and zinc oxide paste developed by German dermatologist Oskar Lassar) is used most successfully for hospital inpatients. The use of dithranol is not without drawbacks; it can stain both skin and clothing and can burn non-affected skin if its application is not precise.

So, careful application in hospital is far safer, whereas home use is often less effective because of the difficulties in application. There are also a large number of concentrations available to doctors and the tendency has been

to prescribe people different concentrations to be used in a step-up fashion, whereby the strength of the product is increased based on the level of benefit or adverse reaction.

Proprietary products containing dithranol are more acceptable. They can be applied to the psoriatic plaques and left for up to one hour before washing off. This method reduces the risk of dithranol burning and staining but it's still vital that you take great care when applying the product. It's also advisable to sit on an old towel to protect fabrics where necessary.

Emollients

Emollients soothe, smooth and hydrate the skin and are used for all dry or scaling disorders. Their effects are shortlived and they should be applied frequently, even after improvement occurs. They are useful in dry and eczematous disorders; less so for psoriasis, although they can help with reducing itchiness and removing scale. Light emollients are suitable for many patients with dry skin but a wide range of more greasy preparations are available, including white soft paraffin, emulsifying ointment, and liquid and white soft paraffin ointment. The severity of the condition, patient preference and the location of the psoriasis outbreak will often guide the choice of emollient.

Emollients should be applied in the direction of hair growth. Some ingredients on rare occasions may cause sensitisation, so if an eczematous reaction occurs, it's best to stop using the emollient.

Preparations such as aqueous cream and emulsifying ointment can be used as soap substitutes for hand-washing and in the bath; the preparation is rubbed onto the skin before being rinsed off completely. The addition of a bath oil product may also be helpful. Aqueous cream, however, is not recommended for treating atopic eczema as it has been shown that the sodium lauryl sulphate (a caustic detergent), which helps to de-scale the skin, also damages the skin barrier. Preparations containing an antibacterial should be avoided unless infection is present or is a frequent complication.

Urea is employed as a hydrating agent within moisturisers. It is used in scaling conditions and may be useful in elderly patients. It is occasionally used with other topical agents such as corticosteroids to enhance penetration. See our **Emollients and Psoriasis** leaflet.

WARNING: Studies have shown that emollient creams that become dried on clothing, dressings and other material can catch fire if exposed to a source of ignition (this could include a spark from a naked flame, whilst smoking, using cigarette lighters or any other methods where the product could be exposed to a potential flame source). There have been reported incidents where injury

caused by the ignition of material which has come in contact with emollient creams has led to serious and life-threatening situations and even death.

Immunosuppressant therapies

Methotrexate was discovered to be effective in clearing psoriasis during the 1950s and was eventually approved for this use in the 1970s. In psoriasis, methotrexate works by preventing the excessive division and multiplication of the skin cells that cause skin scaling and raised plaques. It is used only when the condition is severe and unresponsive to conventional treatments as it has many potential side effects. It is also used in treating PsA, so can benefit both conditions at the same time. In men and women considering starting a family, there is a three-month washout period to become drug-free. Methotrexate is also not considered suitable during pregnancy.

Ciclosporin is another immunosuppressant, originally used to prevent transplant patients from rejecting their new organs. Doctors noticed that transplant patients who had a previous history of psoriasis tended to have fewer plaques post transplant and so further research was carried out specifically in psoriasis patients. This revealed ciclosporin to be a quick acting agent. It is usually taken as a short course, but can be taken continuously for up to one year.

Ciclosporin is highly effective in severe psoriasis resistant to other treatments (refractory). How exactly it works is not fully understood, but it may inhibit epidermal hyperproliferation (high rate of cell division) by suppressing T lymphocyte (white blood cells) activity in the lower (dermis) and upper (epidermis) layers of psoriatic skin. Immunosuppressant treatments require regular monitoring, which may include blood tests, blood pressure monitoring and other regular check-ups.

Women of child-bearing age should avoid becoming pregnant while taking ciclosporin. Discuss with your doctor which types of contraception are suitable for you and your partner. Other Immunosuppressants that may be considered are dimethyl fumarate and hydroxycarbamide.

Phosphodiesterase 4 inhibitors

This is an anti-inflammatory oral treatment (tablets) that works by reducing enzymes in the body called phosphodiesterase 4 inhibitors (PDE4), which are involved in the inflammatory process seen in psoriasis and psoriatic arthritis. The drug reduces the skin plaques and improves swollen joints. Women of child-bearing age should avoid becoming pregnant while taking a PDE4 inhibitor. Discuss with your doctor which types of contraception are suitable for you and your partner.

The treatment does contain lactose. There have been reports of an increased risk that some people may experience psychiatric symptoms with PDE4 inhibitors, including depression and suicidal thoughts, therefore close monitoring is required.

NICE has recommended that PDE4 inhibitors can be used if there has been no response to other systemic therapies, including ciclosporin, methotrexate and phototherapy (PUVA: psoralen and ultraviolet A light), or when these treatments are contraindicated or not tolerated.

Phototherapies

People with psoriasis are sometimes referred to a specialist hospital unit for ultraviolet (UV) light therapy. UV light is naturally found in sunlight and has three classifications: ultraviolet A, B and C. UVA penetrates deeper and is associated with skin ageing and wrinkling; UVB reddens skin and causes the skin to darken and burn if unprotected; UVC is absorbed by the ozone layer and doesn't reach the earth's surface. UVC rays are not used in phototherapy treatment.

UVB is used to treat guttate psoriasis, plaque psoriasis and sometimes in palmoplantar pustulosis cases which fail to respond to simple topical treatments. It triggers chemical reactions that reduce the affected cells' ability to reproduce so quickly.

There are two types of UVB treatments: broadband and narrowband. Narrowband UVB is often called TL01 and is the commonest type of UVB treatment in the UK. It works in much the same way as broadband UVB, but is more specific and more intense, which means the plaques clear quicker and with fewer treatments.

PUVA is another form of UV light treatment. It uses UVA light and a plant extract called psoralen. This chemical makes the skin more sensitive to light and increases the effect of the UVA light. Psoralen is normally taken as a tablet or by bathing in a psoralen solution. Like UVB treatment, this is usually administered in hospital but in some very rural areas a home service may be available.

Both forms of UV light treatment have an accumulative effect on the skin, which ranges from freckling, epidermal thickening and wrinkling to epidermal dysplasia or skin tumours such as basal cell carcinoma (known as rodent ulcer, as it is localised and rarely spreads). This is why there is a limit to the number of treatments allowed and the skin is rechecked when undergoing treatment. However, levels of prior exposure to sunlight and use of sunbeds can increase the risk of skin cancer and phototherapy may be ruled out as a treatment option altogether for those with a family history of melanoma.

People are skin typed 1-5. Those who are skin type 1 are difficult to treat as they always burn and rarely tan, so this treatment might not be deemed suitable.

The duration of therapy is usually three times a week for six to eight weeks or until the psoriasis has cleared to an acceptable amount. Most phototherapy departments will provide a letter for employees and students to request flexible time to attend. See our **Psoriasis and Phototherapy** leaflet.

Retinoids

Retinoids are a derivative of vitamin A and can be used both orally and by direct application to the skin. It should not be confused with the vitamin A products bought as vitamin supplements.

Oral acitretin is an effective vitamin A-based treatment for psoriasis. It is only prescribed by dermatologists in a hospital setting for severe, extensive, refractory psoriasis. It has a long half-life, which means it remains in the body for a considerable period of time after treatment and it is persistent in tissues. In women this requires contraceptive measures during the course and for at least three years following therapy, as it can harm the development of unborn children.

Topical retinoids are used to treat mild to moderate plaque psoriasis by reducing the formation of patches of raised skin. They are also helpful in palmar plantar psoriasis by reducing the thickening of the skin that can make dexterity difficult for everyday activities.

They also reduce the formation of cytokines and interleukins (two chemicals in the body that are responsible for causing inflammation). In other words, retinoids act by reducing the inflammation and the rate at which the skin cells develop plaques. However, if it comes in contact with normal skin it can cause irritation.

Specificity and low systemic absorption mean that topical retinoids produce fewer side effects than the earlier formulations. It has a half-life of only 18 hours and does not accumulate on repeated administration.

Contraceptive measures are only necessary for women during treatment with topical agents. If taken orally, there is a three-year wash-out period, so retinoids are not commonly used in women of childbearing age.

Steroids

Topical corticosteroids are used for the treatment of inflammatory conditions of the skin (other than those arising from an infection) and are safe if used correctly. They are effective in conditions such as eczema and psoriasis.

Topical corticosteroids only suppress the inflammatory reaction during use; they will not cure the condition and the skin problem may get worse once the use of topical corticosteroids stops. This is called a rebound effect. They are generally used to relieve symptoms and suppress signs of the disorder when other measures such as emollients are ineffective.

Topical corticosteroids are categorised in four strength categories:

- mild
- moderate
- potent
- very potent.

The strength chosen is prescribed by doctors depending upon the individual and the extent and severity of their condition.

The risk of side effects runs parallel with the strength of the steroid and the duration of therapy. The face, genitals and skin fold areas will absorb more steroids than other areas. If you use a steroid under a bandage (making it occlusive) or via a plaster it will also have the same effect. Side effects on the skin may be apparent within two weeks of use.

Potent and very potent steroids should be carefully monitored and limited to a few weeks of use, after which a milder steroid should be substituted if possible.

Pulsing is a term used when a steroid is used for four weeks, with four weeks' rest or more if the skin is clear. This use of topical steroids allows the skin to recover between courses of treatment and the individual should be reviewed every three months. Only mildly and moderately potent steroids should be used in children to avoid potential growth retardation and long-lasting cosmetic disfigurement; if they have severe psoriasis a dermatologist might give different instructions. If allergic contact dermatitis occurs with topical steroids, then patch testing is required and patients should be switched to another steroid in the same potency group. If tachyphylaxis (decrease in the response to a drug) occurs then it is best to change to another product using a different molecule.

Systemic or very potent topical corticosteroids should be avoided or given only under specialist supervision in psoriasis (such as palmar plantar psoriasis) because, although they may suppress the psoriasis in the short term, relapse or vigorous rebound occurs on withdrawal (sometimes precipitating severe pustular psoriasis). These can be combined with another topical therapy that can be continued on the four weeks' rest period, for example a vitamin D preparation.

In the case of scalp psoriasis it is reasonable to use a more potent corticosteroid. Unfortunately there are only potent or very potent corticosteroid products, such as gels, foams, shampoos or lotions. Again, pulsing can be effective once you have control. It should be prescribed as a once-a-day application, although in severe cases a dermatologist may advise a twice-a-day application in the short term. If the scalp is very scaly then your dermatologist will be able to show you how to use a suitable moisturiser. Skin infections are not that common in psoriasis, but can be found between two skin folds that get moist or rub, and antibacterial agents can be combined with steroid preparations with good effect. However, the antibiotic can act as an allergen in some people. Topical therapies are ideal for localised problems, whereas oral antibiotics will be prescribed for more widespread infection. Topical antibiotic combination preparations should only be used for two weeks, to prevent bacterial resistance and reduce adverse effects so pulsed treatment can be used.

Targeted synthetic DMARDs

Targeted synthetic DMARDs are new types of DMARDs that improve joint and skin symptoms. They block specific parts of the immune system like biologic drugs but they are chemical rather than biological and are given as a tablet rather than injection. They block a chemical called PDE4. It can help joint pain and psoriasis but does not work for inflammation in the spine. Other drugs available in this group block a chemical called janus kinase inhibitors (JAK). There are a number of other drugs that block JAK also in development for the future. These can work for joints, skin and spinal disease.

Vitamin D analogues

Vitamin D analogues, such as calcipotriol, calcitriol and tacalcitol, should not be confused with the vitamin supplements that you may take; they've been modified to have a completely different effect.

They slow down the overproduction of skin cells and stimulate differentiation of keratinocytes, a type of cell in the upper layer of the skin correcting the abnormally fast cell turnover that characterises psoriasis. Unlike naturally occurring vitamin D, they have less effect on calcium metabolism (the mechanism which regulates the calcium levels in the body), so the risks of high levels of calcium in the blood (hypercalcaemia) or in the urine (hypercalciuria) are reduced. Nevertheless there are limits to how much can be used at any one time (100g per week) to limit the possibility of these side effects happening.

The ease of use and low side effect levels have made these agents popular with medical professionals and people with psoriasis.

One of these agents has been combined with a topical potent corticosteroid to help reduce skin inflammation as well. These products have a time limitation of use of four weeks before stopping and another four weeks before starting again. This allows the skin to recover. The preparation comes in an ointment or a less greasy gel and can be used on body and scalp.

Lifestyle

Maintaining a healthier lifestyle is recommended to anyone with psoriasis, but it's easy to lose confidence when you're not happy with your appearance and a lot of people with psoriasis try to avoid exposing their skin. But avoiding exercise can increase the risk of associated conditions such as diabetes and cardiac disease. Exercise is also a good way to reduce stress, which is a key trigger in psoriasis flareups. If you're worried about the effect that exercise may have because of any pre-existing conditions, speak to your doctor for advice, and if you haven't exercised for a while, start off slowly and carefully, and then build up. Regular exercise and a healthier way of life (such as stopping smoking, eating a healthy diet and reducing alcohol intake) can benefit both your psoriasis and your confidence and self-esteem. New research shows that weight loss can improve your psoriasis severity if you are overweight. See our **Psoriatic Lifestyle and Nutrition**, **Psoriasis and the Heart** and **Psychological Aspects of Psoriasis** leaflets.

Summary

For any treatment to work it is essential that you follow the guidance given by your healthcare provider. Always read the product labels and the Patient Information Leaflet (PIL) supplied with your medication.

Occasionally treatments suddenly stop working (tachyphylaxis) or feel less therapeutic. Since psoriasis can be a lifelong disease it may be necessary for your doctor to change your medication or treatment regime from time to time.

It may be that a change in treatment will allow your skin to recover from the effects of the treatment or gain extra benefit from a medication you've tried previously. Whatever treatment you and your healthcare provider decide is an appropriate course, make sure you report the benefits, improvement and any adverse reactions (side effects) as this will ensure you get the very best level of care. When embarking on a new course of therapy it is always worth mentioning any other condition that may affect you to your doctor; for some people certain treatments may be inappropriate if they have other conditions (comorbidities).

Useful contacts:

For information about health matters in general and how to access services in the UK, the following websites provide national and local information.

- NHS UK: www.nhs.uk
- NHS England: www.england.nhs.uk
- NHS Scotland: www.scot.nhs.uk
- Health in Wales: www.wales.nhs.uk
- HSCNI Services (Northern Ireland):<http://online.hscni.net>

These are the official sites for the National Health Service and provide links and signposting services to recognised organisations and charities.

About this information

This material was produced by PAPAA. Please be aware that research and development of treatments is ongoing.

For the latest information or any amendments to this material, please contact us or visit our website: www.papaa.org. The site contains information on treatments and includes patient experiences and case histories.

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