

# PSORIASIS

## BACKGROUND

Psoriasis is a chronic inflammatory skin disease that is characterized by thick, raised, bright red and pink plaques with a silvery scale. The most common form is plaque psoriasis, which typically involves the scalp, elbows, knees, and back. It is estimated to affect between 1% and 8.5% of adults worldwide and becomes more common with increased distance from the equator. In the United States, it affects about 2% of the population. Psoriasis is much less commonly seen in children. The onset of psoriasis peaks in the fourth decade and again between the ages of 50 and 69.

Psoriasis is generally regarded as a disorder of the immune system that leads to the production of proinflammatory cytokines and overproduction and abnormal maturation of the outer layer of skin cells. While genetics plays a big role in the development of psoriasis, behavioral and environmental factors clearly influence the course of the disease. Infections, stress, trauma, and certain medications are known to initiate or worsen flares in people who have a genetic predisposition to developing psoriasis. Additionally, smoking is clearly implicated in the onset and severity of psoriasis, with the incidence of psoriasis decreasing after successful smoking cessation. Psoriasis has been linked with higher body mass index and increased alcohol intake as well. Finally, some medications are known to worsen psoriasis. These include lithium, beta-blockers, antimalarials, interferon, and rapid tapers of systemic corticosteroids.

Psoriasis is associated with several comorbidities including arthritis (psoriatic arthritis), cardiovascular disease, depression, diabetes, and metabolic syndrome, and nonmelanoma skin cancer.[1] It is important to screen for these and address them when present.

## TREATMENT

### SKIN CARE

Gentle skin care can help minimize itching and limit trauma-induced flares. Bathing in lukewarm water using non-detergent-based cleansers such as soapless cleansers or glycerin-based soaps is an important first step. Abrasive cleansing devices should be avoided because these can be traumatic to the skin and actually worsen psoriasis. Finally, applying thick moisturizing creams or ointments—especially while the skin is still damp—will help keep psoriatic skin soft and less vulnerable to itching and trauma. Natural oils such as avocado, coconut, almond, or olive can be very helpful. Colloidal oatmeal in the form of an emollient or bath powder (such as Aveeno) can also help soothe itching and irritation from psoriasis.

## FOOD & DRINK

Healthy dietary choices are important for overall health. Anti-inflammatory or Mediterranean-style dietary approaches have been found to enhance many aspects of health—especially in the setting of inflammatory diseases. Psoriasis is an inflammatory condition and will likely improve when dietary choices better align with foods that inhibit rather than promote inflammation. Dietary studies in psoriasis are limited, but there are a few that indicate an anti-inflammatory diet contributes to less-severe disease. [2] Additionally, a plant based, anti-inflammatory approach to diet will help with the comorbidities associated with psoriasis. More information about these dietary approaches can be found in the Whole Health tool “[Choosing a Diet.](#)”

Diets that promote weight loss (e.g., low-calorie diets) have been found to be beneficial in overweight and obese patients with psoriasis.[3] It is important to make sure that the specific diet followed ensures adequate nutritional intake. Involving the aid of a dietician may be helpful.

Additionally, some patients with psoriasis have experienced improvement on a gluten-free diet.[4] Elevated markers for celiac disease (tissue transglutaminase antibodies and endomysial antibodies) have been found in some patients with psoriasis as well, and in these patients, disease severity appears to correlate with circulating levels of these markers.[5,6] Asking about family history of gluten sensitivity and about gastrointestinal symptoms of flatulence, diarrhea, and iron deficiency anemia may suggest sensitivity to gluten. Testing for these markers may help identify those patients who are most likely to benefit from a gluten-free diet. Find more information about how to eliminate gluten refer to the Whole Health tool “[Elimination Diets.](#)”

## SUPPLEMENTS

**Note:** Please refer to the [Passport to Whole Health](#), Chapter 15 on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer

## OMEGA-3 FATTY ACIDS

Omega-3 fatty acids have been shown to decrease the production of inflammatory compounds. Studies looking at the effects of increased intake of fish high in omega-3 fatty acids and at the effects of omega-3 fatty acid supplementation on psoriasis have found benefit.[7-9] However, the data is not entirely supportive. A recent meta-analysis concluded that fish oil supplementation does not result in significant improvement in psoriasis.[10] Another review looked at 12 articles and found the evidence to be inconclusive.[11] It appears that the ratio of omega-3 to omega-6 fatty acids is important and dietary differences of the subjects could explain why the results are inconclusive.

Ideally, omega-3 fatty acids should come from foods such as fatty fish (salmon, mackerel, and sardines), flaxseeds, and walnuts. When that is not possible, supplements can be helpful. Fish oil has also been shown to minimize the side effects of systemic therapies for psoriasis.

- **Dose:** 640-3,500 mg EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) daily[12,13]

## CURCUMIN

Curcumin is the active component of turmeric. It has been shown to inhibit proinflammatory pathways important in psoriasis.[14] Studies evaluating clinical use have been limited, but the spice is very safe. Clinical studies have found it safe at doses up to 8-12 gm/day with the only side effects being reversible gastrointestinal problems (nausea and diarrhea).[15]

- **Dose:** 1,500 mg up to three times a day[16]

## VITAMINS AND MINERALS

### VITAMIN D

One study found that vitamin D levels were decreased in patients with psoriasis when compared to age-matched controls, and it appears that the level of vitamin D deficiency correlates with disease severity.[17] For patients who are deficient in vitamin D, supplementation can be helpful, but it is not recommended for people with psoriasis who are not found to be deficient.[18] Given the role vitamin D plays in other chronic inflammatory diseases such as cardiac disease, autoimmune diseases, and diabetes, checking a patient's vitamin D level and/or conservative supplementation may be helpful.

- **Dose**[19]:
  - 600 IU/day for supplemental uses
  - 1,000 IU/day for treatment of vitamin D deficiency
  - 4,000 IU/day is the current suggested upper limit\*

\*More recent research suggests that doses up to 10,000 IU/day are safe and that the upper limit should be set at this level.[20] Above 10,000 IU/day a person should be in the care of a physician and monitored for signs of vitamin D toxicity, which includes hypercalcemia (headache, nausea, vomiting, abdominal pain, increased urination, and thirst).

### ZINC

Zinc is a cofactor in many reactions important in maintaining skin health and immune function and has been shown to have anti-inflammatory properties. Most clinical studies looking at zinc supplementation for treatment of psoriasis have not shown benefit. However, there are case reports of zinc therapy resulting in improvement of psoriasis, and

some clinicians who have used zinc supplements for patients with psoriasis feel strongly that it can be beneficial for some patients.

It is likely that the formulation of zinc is important, and it appears that effervescent preparations of zinc, zinc picolonate, and methionine-bound zinc are more bioactive than other formulations such as zinc gluconate.

- **Dose:**
  - 30-50 mg elemental zinc a day[21]\*
  - 220 mg zinc sulfate (50-90 milligrams elemental zinc depending on the preparation) 1-3 times a day[22]

\*At doses higher than 30 mg a day, zinc can induce a copper deficiency; 2 mg of copper should be added for every additional 30 mg of elemental zinc.

Food sources: oysters, beef, poultry (dark meat), pork, beans, nuts

## SELENIUM TOPICAL BOTANICALS

### ALOE VERA

Aloe vera is a succulent plant whose thick leaves contain an inner pulpy mucilaginous gel. The compounds in aloe vera have been found to have anti-inflammatory and anti-itch properties, as well as pain reduction and wound healing effects. Various preparations have been found effective in the treatment of psoriasis.

Development of contact dermatitis is possible but appears to be rare.

- **Dose:**
  - Aloe vera gel applied two to multiple times a day[23]
  - 0.5% extract in cream applied three times a day[24]
  - Cream containing 70% aloe mucilage applied twice a day[25]

### INDIGO NATURALIS EXTRACT

*Indigo naturalis* extract has been shown to decrease markers of cell proliferation and inflammation seen in psoriasis. An 8-week, side-by-side trial where 14 people with chronic plaque psoriasis applied either 5% indigo or vehicle placebo to contralateral sides of the body were evaluated with both objective measures of psoriasis severity as well as with biopsies. Ki-67 (a marker for skin cell proliferation) and CD3 (an inflammatory marker seen in psoriasis) were both decreased.[26]

- **Dose:** 3%-7% ointment, cream, or oil applied 1-2 times a day

### GLYCYRRHETINIC ACID

Glycyrrhetic acid is a component from licorice root that has inhibitory activity on the enzyme 11-beta-hydroxysteroid dehydrogenase which is responsible for inactivating

cortisol. It has been shown to potentiate the action of hydrocortisone in the skin. [27] Glycyrrhetic acid has also been shown to have anti-inflammatory properties as well [28]. One review looked at 11 randomized controlled trials in which topical glycyrrhetic acid was used along with conventional therapy for psoriasis. The glycyrrhetic acid enhanced the response, with a greater number of people experiencing significant improvement. Adverse reactions were the same with and without the addition of glycyrrhetic acid. [29]

- **Dose:** 2% glycyrrhetic acid cream or ointment once to twice a day

## MAHONIA AQUAFOLIUM

Also known as Oregon grape, *Mahonia aquafolium* contains berberine, which has anti-inflammatory and antimicrobial activities. It is a compound that can be helpful in treatment of psoriasis. It has been shown to decrease 5 lipoxygenase activity, reduce levels of inflammatory cytokines, and decrease expression of keratins 6 and 16, which are overexpressed in psoriatic plaques. Berberine also appears to decrease keratinocyte proliferation.[30] Topical treatment with *M. aquafolium* appears to surpass treatment with calcipotriene, and it is safe. Potential side effects reported include itching, burning, and rash.

- **Dose:** 10% *Mahonia aquafolium* cream or ointment once or twice a day.

## CAPSAICIN

Itching is caused by a compound called substance P, which has been found to be higher in skin affected by psoriasis. Capsaicin is a compound extracted from the red pepper that causes depletion of substance P. It has been shown to decrease the sensation of itch in psoriasis.

It can cause a burning sensation that usually only lasts a few days with continued use.

- **Dose:**
  - 0.025% cream applied 4 times per day[31]
  - 0.075% cream is also available

## TOPICAL OVER-THE-COUNTER MEDICATIONS

### KERATOLYTICS

Keratolytics are compounds that break down the outer layers of the skin. This class of compounds includes salicylic acid (2%-10%), urea (20%-40%) and alpha-hydroxy acids (glycolic and lactic acids). They can help to decrease the thickness of psoriatic plaques, which can lead to increased comfort, decreased itching as well as better absorption of other topical medications.

- **Dose:** Compounds with 2%-10% salicylic acid, 20%-40% urea, or alpha-hydroxy acids applied once to several times a day as long as they do not cause irritation

## TAR

Tar-based products are either derived from coal or from wood (pine, birch).

A precise mechanism of action is difficult to determine because of the large number of compounds present in tar-based products. Possible mechanisms of action include anti-inflammatory properties, anti-itch properties, and the ability to slow down the increased rates of cell turnover seen in psoriasis. Side effects are infrequent and potentially include local irritation or allergic reactions, folliculitis or acne-like eruptions, and increased photosensitivity. Prolonged use of high concentrations in sun-exposed areas may result in an increased risk of skin cancer. If the formulation is too strong or irritating, it can worsen psoriasis.

- **Dose:** 1%-5% crude tar or 10%-20% tar extract (LCD)[32]

## OTHER THERAPIES TO CONSIDER

### LIFESTYLE CHOICES

Regular exercise and good sleep are important for all aspects of overall health. One large population-based study found a decreased risk of psoriasis in people who engage in vigorous physical exercise for at least 3-4 hours per week,[33] and other studies have found improvement in psoriasis with exercise. Other health problems should be considered when starting a new exercise program, but it is reasonable for most otherwise healthy people with psoriasis to consider adding or increasing regular vigorous exercise in their daily lives.

Ultraviolet (UV) exposure can also help minimize psoriatic flares and phototherapy is often used in the clinical setting for treatment of psoriasis. Spending time engaged in outdoor activities may help improve psoriasis by UV exposure as well as by increasing physical activity levels. Overall risks for developing skin cancer including skin type, family history, and past sun exposure should be taken into account when determining how long a person with psoriasis should be in the sun without UV protection.

### MIND-BODY

Stress plays a strong role in psoriatic flares.[34] There are a wide range of mind-body approaches that can be beneficial for people who have psoriasis.[35] Mindful awareness meditation has been shown to help alleviate symptoms of psoriasis in some people. Medical hypnotherapists help guide people into a deeply relaxed trance state. They make suggestions with specific intentions regarding the alleviation of suffering and promotion of healing. Hypnosis has been shown to improve psoriasis in patients who are highly hypnotizable. Biofeedback uses technology to help patients learn to relax by learning to control their autonomic nervous system, and can be particularly helpful to people who have lower hypnotic abilities.[36] Cognitive Behavioral Therapy (CBT) has been found beneficial—especially in patients with moderate to severe psoriasis.[37]

The relationship between practitioner and patient is extremely important for any mind-body therapy, and it is crucial to find a practitioner that one can work with comfortably.

## **TRADITIONAL CHINESE MEDICINE**

Traditional Chinese Medicine (TCM) is a health system that has been around for over 2,500 years. It is based on the premise that qi is a vital energy that maintains health and balance in the body. Two opposing but complementary forces—yin and yang—support health when they are in harmony and are responsible for disease when they are out of balance. There are several techniques used in the scope of TCM with acupuncture and herbal medicine being the most common in the United States. As a system, the techniques are best used in combination by skilled practitioners. Acupuncture alone or with TCM herbs has shown effective for treating psoriasis.[38] Other acupoint-related therapies including acupressure (needleless pressure applied at an acupuncture point) and cat gut embedding (catgut is embedded under the skin at acupuncture points providing stimulation for 5-7 days before it is absorbed) have also shown benefit in psoriasis.[39]

When looking for a TCM practitioner, one should inquire about certification and education. Any practitioner should at minimum have state licensure. The National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) has strict certification requirements, and members are required to recertify every 4 years. Refer to the [NCCAOM](#) website for a directory of certified practitioners. For more information, refer to “Whole Systems of Medicine,” Chapter 18 in the [Passport to Whole Health](#).

## **HOMEOPATHY**

Homeopathy is a medical system that uses highly diluted substances to treat disease with the intention of triggering the body’s innate ability to heal. Remedy selection takes into consideration the patient’s symptoms, personality traits, physical and psychological states, and life history. Although research is limited, homeopathy has been shown effective at treating psoriasis.[40] Because worsening of a condition is possible with homeopathic treatment, it is important to work with a well-trained and qualified homeopathic practitioner. One should look for a practitioner who is certified by at least one of the following organizations: Council for Homeopathic Certification (CHC), North American Society of Homeopaths (NASH), American Board of Homeotherapeutics (ABHt), or Homeopathic Academy of Naturopathic Physicians (HANP). For more details, refer to “Whole Systems of Medicine,” Chapter 18 of the [Passport to Whole Health](#).

## **PREVENTION OUTLINE: PSORIASIS**

- Maintain a balanced lifestyle including regular exercise and adequate sleep.
- Eat a high-quality anti-inflammatory or Mediterranean-style diet.
- Eat foods high in omega-3 fatty acids (salmon, nuts, flax) or take a supplement.
- Consider a trial of a gluten-free diet—especially if you have GI symptoms.
- Maintain a healthy body weight.
- Find ways to better manage stress.

- Avoid alcohol overuse.
- Avoid tobacco.
- Avoid or minimize medications known to exacerbate psoriasis: lithium, beta-blockers, antimalarials, interferon, and rapid tapers of systemic corticosteroids
- Practice good skin hygiene and use emollients liberally to minimize itch.
- Consider topical aloe and indigo.

## RESOURCE LINKS

- [Choosing a Diet](https://wholehealth.wisc.edu/tools/choosing-a-diet/): <https://wholehealth.wisc.edu/tools/choosing-a-diet/>
- [Elimination Diet](https://wholehealth.wisc.edu/tools/elimination-diets/): <https://wholehealth.wisc.edu/tools/elimination-diets/>
- [Passport to Whole Health](https://wholehealth.wiscweb.wisc.edu/wp-content/uploads/sites/414/2018/09/Passport-to-Whole-Health-3rd-Edition-2018.pdf): <https://wholehealth.wiscweb.wisc.edu/wp-content/uploads/sites/414/2018/09/Passport-to-Whole-Health-3rd-Edition-2018.pdf>
- [NCCAOM](http://www.nccaom.org/find-a-practitioner-directory/): <http://www.nccaom.org/find-a-practitioner-directory/>

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