

# Tratamiento de La Psoriasis

## • Therapies for localized psoriasis

- topical corticosteroids
  - treatment of choice for relatively localized psoriasis
  - occlusive dressings increase potency of steroid (may hasten improvement but also increase side effects)
  - use ointments for dry, scaly lesions and solution for scalp
  - topical steroids may be tapered as tolerated and restarted for disease flares
- topical calcipotriene (Dovonex) moderately effective in reducing thickness, scaliness and erythema of psoriatic lesions, and most effective when used in combination with topical corticosteroids
- addition of topical salicylic acid to topical corticosteroids more effective than steroid alone
- coal tar product (Estar gel, Balnetar, MG271, Neutrogena T/Gel, DHS Tar)
  - may also be used as initial therapy, along with topical steroids or ultraviolet B light therapy
  - use limited by inconvenience of bad odor and staining of clothing and bed linens
- intralesional corticosteroid injections (e.g. triamcinolone) may be effective for localized fixed plaques
- anthralin (dithranol, Anthra-Derm, Drithocreame, Dritho-scalp, Miconal)
  - second-line agent derived from wood tar
  - generally used for large, thick plaques
  - may cause irritation of normal skin and stains skin, clothing and bathtub
- tazarotene (Tazorac) gel
  - modest efficacy, slow onset of action and high potential for causing irritation
  - contraindicated in pregnancy (Category X)
- sun exposure may be helpful for more extensive disease
- topical aloe vera extract associated with impressive cure rates in one trial, results appear "too good to be true"

## • therapies for generalized psoriasis


- typically treated by dermatologist, often with combination therapy
- ultraviolet B light
  - highly effective
  - may cause acute phototoxicity but no long-term side effects
  - can be used at home
  - narrowband ultraviolet B light has largely replaced broadband ultraviolet B light in treating psoriasis due to longer remissions and fewer burns ([BMJ 2000 Mar 25;320\(7238\):850](#))
- psoralen plus ultraviolet A (PUVA)
  - highly effective
  - high risk for acute phototoxicity
  - long-term use associated with cutaneous malignancies
- retinoids - acitretin (Soriatane)


- a retinoid best used for pustular psoriasis
- moderately effective
- adverse effects include teratogenicity, dry skin, elevated triglycerides and hyperostosis
- methotrexate (Rheumatrex) - highly effective; may cause hepatotoxicity and pancytopenia
- cyclosporine (Sandimmune, Neoral) - highly effective; renal toxicity limits long-term use
- tumor necrosis factor inhibitors highly effective in randomized trials; etanercept (Enbrel) FDA approved for psoriasis
- alefacept (Amevive) effective in randomized trials and FDA approved for psoriasis
- efalizumab 1-2 mg/kg subcutaneously weekly effective in 3 randomized trials
- infliximab 5 mg/kg IV at weeks 0, 2 and 6 then every 8 weeks effective in 1 randomized trial

## Medications:

- **therapies for localized psoriasis**
  - [topical corticosteroids](#)
    - 90% can be treated with steroids, treatment of choice for moderate relatively localized psoriasis
    - steroids normalize hyperproliferation
    - potential side effects include hypertrichosis, hyperpigmentation, striae
    - vehicles used for topical corticosteroids
      - ointments generally most effective for psoriasis, oil based provides occlusive barrier and lipophilic, may not be cosmetically acceptable
      - creams (oil-in-water emulsions) and gels (colorless, contain alcohol) have intermediate efficacy
      - lotions and solutions generally less effective, water-based, can have drying effect, easier to apply
      - gels, foams and sprays with alcohol base may cause burning sensation
      - foams, solutions and shampoos used for scalp
      - Reference - [The Medical Letter 2006](#) Mar 27;48(1231):27
    - some corticosteroids FDA approved for or specifically studied in psoriasis
      - betamethasone valerate 0.12% foam (Luxiq) FDA approved for corticosteroid-responsive dermatoses of scalp
        - thermolabile foam which liquefies upon contact with skin
        - comparable to betamethasone 0.12% lotion and superior to placebo foam in 4-week trial of 190 patients with moderate to severe scalp psoriasis applied twice daily with improvement expected within 2 weeks


- Reference - Monthly Prescribing Reference 1999 Apr:A-12
- clobetasol
  - clobetasol propionate 0.05% (Olux) FDA approved for corticosteroid-responsive dermatoses of the scalp, applied twice daily up to maximum 50 g/week and maximum 2 consecutive weeks (Monthly Prescribing Reference 2000 Dec:A-15)
  - clobetasol propionate 0.05% (Olux Foam) FDA approved for plaque-type psoriasis of non-scalp regions excluding face and intertriginous areas (PDR Monthly Prescribing Guide 2003 Feb;2(2):16)
  - clobetasol 0.05% (Clobex) shampoo FDA approved for scalp psoriasis in adults, applied for 15 minutes to dry scalp, used daily for 4 weeks (Cortlandt Forum 2004 Sep;17(9):25)
  - clobetasol 0.05% (Clobex) spray
    - FDA approved for moderate-to-severe plaque psoriasis affecting up to 20% body surface area in adults
    - applied and rubbed into affected areas twice daily, assess at 2 weeks and continue additional 2 weeks if inadequate response
    - maximum weekly dose is one 59 mL bottle
    - avoid super-high-potency corticosteroids to face, groin or axilla
    - clobetasol spray approval based on 2 unpublished trials with 240 patients given clobetasol spray 0.05% vs. vehicle spray twice daily for 4 weeks, 28% clobetasol vs. 0 vehicle patients considered "clear" (NNT 4), 53% vs. 3% considered "almost clear" (NNT 2), median body surface area of psoriasis involvement 6%
    - Reference - [The Medical Letter 2006](#) Mar 27;48(1231):27
- **fluticasone ointment 0.005% in moderation appears safe and effective over 10 weeks for facial lesions**
  - case series of 20 patients with psoriasis on face and intertriginous areas treated with open-label fluticasone ointment 0.005% twice daily for 2 weeks
  - if no skin atrophy or telangiectasia noted at 2 weeks, treatment continued daily for 2 consecutive days per week for 8 more weeks
  - 85% lesions maintained > 50% improvement, no cases of skin atrophy or telangiectasia
  - Reference - [J Am Acad Dermatol 2001;44:77](#)
- calcipotriene (Dovonex) ointment

- vitamin D3 analog applied twice daily
- excessive use can cause hypercalcemia (BMJ 1993;306;896)
- available formulations
  - available as 0.005% cream for treatment of plaque psoriasis (Monthly Prescribing Reference 1997 Jan;78)
  - calcipotriene 0.005% (Dovonex) available as ointment, cream, and scalp solution (Monthly Prescribing Reference 1997 Jun;A-22)
  - labeling for ointment updated to include daily dosing option (Monthly Prescribing Reference 1999 Oct;A-34)
- **calcipotriene (Dovonex) used widely for plaque-type psoriasis but less useful for guttate, erythrodermic or pustular psoriasis due to potential for irritation**
  - ointment more effective than cream which is more effective than solution, commonly used twice daily
  - calcipotriene ointment at least as effective as betamethasone valerate ointment, calcipotriene solution less effective than betamethasone valerate solution for scalp psoriasis
  - most frequent side effect is irritation, combination with betamethasone reduces irritation and cost
  - combination more effective than monotherapy or allowed lower doses in studies with UVB (avoid use immediately after UVB), PUVA, acitretin and cyclosporin A
  - Reference - J Dermatol Treat 1997;8:261 in QuickScan Reviews in Fam Pract 1999 Apr;24(1):8)
- clinical studies
  - **calcipotriene as or more effective than most other topical treatments except for potent corticosteroids**
    - meta-analysis of 37 randomized controlled trials of calcipotriene in 6038 patients with plaque psoriasis, all trials lasted 6-8 weeks
    - calcipotriene at least as effective as potent topical corticosteroids, calcitriol, short contact dithranol, tacalcitol, coal tar, and combined coal tar 5%/allantoin 2%/hydrocortisone 0.5%
    - calcipotriene caused less skin irritation than dithranol but more skin irritation than corticosteroids
    - Reference - [BMJ 2000 Apr 8;320\(7240\):963](#)  [EBSCOhost Full Text full-text](#), commentary can be found in [BMJ 2000 Aug 12;321\(7258\):452](#)
    - no analysis provided to suggest likelihood of publication bias affecting conclusions (DynaMed commentary)
  - **insufficient evidence to support large benefit for addition of topical calcipotriene to other treatments** (acitretin, cyclosporine, or psoralen-UVA), based on systematic review of 11 randomized trials with 756

- patients with plaque psoriasis ([Arch Dermatol 2000 Dec;136\(12\):1536](#) in JAMA 2001 Mar 28;285(12):1561)
  - safe and effective in trial of 277 patients ([J Am Acad Dermatol 1995;32:67](#))
  - **topical calcipotriene effective for chronic plaque psoriasis**
    - safety and efficacy demonstrated in long-term trial of 397 patients (South Med J 1996;89:1053), psoriasis cleared by 24-36 weeks in many patients
    - limit drug to < 100 g/week (Scientific American Medicine 1997;1,2,III:8,12 in Cortlandt Forum 1997 Aug;10(8):21)
- combination calcipotriene and betamethasone (Taclonex)
  - **combination of calcipotriene 0.005% plus betamethasone dipropionate 0.064% ointment (Taclonex) FDA approved for topical treatment of psoriasis vulgaris in adults**
    - Taclonex approval based on 5 double-blind, controlled trials of once daily therapy with 2,661 patients with mild to very severe psoriasis vulgaris
    - labeled dosing is for adults to apply to affected area once daily for up to 4 weeks, maximum 100 g/week, limit treatment area to 30% body surface area, do not occlude
    - contraindications are calcium metabolism disorder; erythrodermic, exfoliative or pustular psoriasis; and use on face, axillae, groin or atrophic skin
    - listed adverse effects are hypercalcemia, headache, hypothalamus-pituitary-adrenal axis suppression (especially in children), and local side effects
    - Reference - Monthly Prescribing Reference 2006 Apr:A-12
  - **combination therapy more effective than monotherapy but more expensive**
    - mean reduction in Psoriasis Area and Severity Index at 4 weeks was 65-74% with combination product, 46-59% with calcipotriol alone and 57-63% with betamethasone alone in meta-analysis of 6 trials with 6,050 patients ([J Eur Acad Dermatol Venereol 2006 Jan;20\(1\):39](#)  [EBSCOhost Full Text](#))
    - cost for 60 g ointment
      - calcipotriene/betamethasone dipropionate 0.005%/0.064% (Taclonex) once daily \$391.20
      - calcipotriene 0.005% (Dovonex) once or twice daily \$142.80
      - betamethasone dipropionate 0.05% (generic) once daily \$30.00
    - Reference - [The Medical Letter 2006 Jul 3;48\(1238\):55](#)
  - **combination calcipotriene and betamethasone more effective than monotherapy**
    - 1,043 patients with psoriasis vulgaris were randomized to calcipotriene 50 mcg/g plus betamethasone 0.5 mg/g in

new vehicle designed for simultaneous application vs. calcipotriene alone in new vehicle vs. betamethasone alone in new vehicle vs. new vehicle alone to be applied to affected areas (sparing face and scalp) twice daily for 4 weeks

- response (at least 75% improvement) reported in 76.1% combination vs. 33.4% calcipotriene vs. 55.8% betamethasone vs. 7.5% control group
  - compared to control, NNT 4 for calcipotriene, 2 for betamethasone and 2 for combination
  - compared to betamethasone, NNT 5 for combination
  - no significant differences in adverse events
  - Reference - [J Am Acad Dermatol 2003 Jan;48\(1\):48](#)
- addition of topical salicylic acid to topical corticosteroids
- addition of topical salicylic acid to topical corticosteroid more effective beginning after 8 days in trial with 408 patients randomized to combination ointment mometasone furoate 0.1% plus salicylic acid 5% vs. mometasone furoate 0.1% ointment applied twice daily for 21 days ([Clin Ther 1998 Mar-Apr;20\(2\):283](#))
  - combination ointment mometasone furoate 0.1% plus salicylic acid 5% more effective than fluocinonide 0.05% ointment in 21-day randomized trial of 40 patients ([Clin Ther 1997 Jul-Aug;19\(4\):701](#))
- tazarotene topical gel 0.05%-0.1% (Tazorac)
- approved for stable plaque psoriasis affecting up to 20% body surface area; obtain negative pregnancy test within 2 weeks of starting and use effective contraception; used nightly; side effects of pruritus, stinging, erythema, worsening of psoriasis (Monthly Prescribing Reference 1997 Aug;A-15)
  - marked improvement in 50-70% patients with mild to moderate psoriasis in 6-12 week trials; patient might use 40 g/week, cost to pharmacist for 0.05-0.1% is \$60-63.75 for 30 g and \$200-212.50 for 100 g tube ([The Medical Letter 1997 Nov 7;39\(1039\):105](#))
- antibiotics not supported by evidence
- often recommended in child who suddenly develops guttate psoriasis since it may be precipitated by streptococcal infection, tonsillectomy has also been advocated but no supporting evidence
  - **no evidence to support use of antibiotics in management of established guttate psoriasis or in preventing development of guttate psoriasis following streptococcal sore throat;** systematic review with extensive literature search found only 1 eligible trial which compared two oral antibiotic schedules in 20 psoriasis patients with evidence of beta-haemolytic streptococcal colonization, no patients in either group improved during observation period, no randomized trials of tonsillectomy for psoriasis identified; systematic review last updated 2000 Jan 7 ([Cochrane Library 2000 Issue 2:CD001976](#)), also published in [Br](#)

[J Dermatol 2001 Dec;145\(6\):886](#)  [EBSCOhost Full Text](#)  
(JAMA 2002 Mar 20;287(11):1372)

- addition of penicillin to topical betamethasone dipropionate 0.05% plus ultraviolet B for guttate psoriasis associated with non-significant trend toward reduced disease activity in randomized trial of 20 patients with guttate psoriasis ([Croat Med J 2002 Dec;43\(6\):707](#) in JAMA 2003 Mar 19;289(11):1351)
- **topical aloe vera extract associated with impressive cure rates in one trial** 60 patients with slight-to-moderate chronic plaque-type psoriasis randomized to aloe vera extract (0.5% in hydrophilic cream) vs. placebo cream 3 times daily 5 days/week for up to 4 weeks, 83% vs. 7% cure rates ( $p < 0.001$ ), no relapses at 12 months ([Trop Med Int Health 1996 Aug;1\(4\):505](#) in Alternative Medicine Alert 2001 Jan;4(1):8); study results appear too good to be true (DynaMed commentary)
- topical capsaicin
  - topical capsaicin 0.025% 4 times daily reduced itching in 6-week randomized placebo-controlled trial of 197 patients with pruritic psoriasis ([J Am Acad Dermatol 1993 Sep;29\(3\):438](#))
  - **capsaicin shown to reduce itching, erythema and scaling in psoriasis**
    - capsaicin must be used at least 4-5 times/day or risk increasing pain, use at least 4 weeks to assess efficacy
    - capsaicin depletes substance P in afferent type C sensory nerve fibers and affects only proprioception, incomplete depletion of substance P may paradoxically heighten proprioception
    - cream should not be applied to open wounds or mucous membranes, wear gloves and wash hands after application
    - capsaicin can cause severe mucous membrane irritation and corneal abrasions, capsaicin  $> 0.1\%$  has potential respiratory toxicity
    - capsaicin available as cream, fresh and dried peppers, capsules, tablets and tinctures
    - home preparations may be unsafe due to respiratory toxicity from aerosolized capsaicin
    - side effects on initial application included burning, stinging, itching and redness which diminished or vanished
    - Reference - [J Am Acad Dermatol 1986;15:504](#) in Alternative Medicine Alert 1998 Jan;1(1):7
- **pimecrolimus 1% cream may be effective for intertriginous psoriasis (level 2 [mid-level] evidence)**
  - 57 patients with moderate to severe inverse psoriasis (intertriginous psoriasis) randomized to pimecrolimus 1% vs. vehicle cream twice daily
  - comparing pimecrolimus vs. vehicle cream
    - 54% vs. 21% were clear or almost clear at 2 weeks (NNT 3)
    - 82% vs. 41% were well controlled at 8 weeks (NNT 3)
  - Reference - [J Am Acad Dermatol 2004 Nov;51\(5\):731](#)

- **tacrolimus 0.1% ointment may be effective for intertriginous and facial psoriasis ([level 2 \[mid-level\] evidence](#))**
  - 167 patients > 16 years old with psoriasis of face or intertriginous areas randomized to tacrolimus 0.1% vs. vehicle ointment twice daily for 8 weeks
  - comparing tacrolimus vs. vehicle ointment
    - 25% vs. 6% were clear or almost clear at 8 days (NNT 6)
    - 65.2% vs. 31.5% were clear or almost clear at 8 weeks (NNT 3)
    - 82% vs. 41% were well controlled at 8 weeks (NNT 3)
  - Reference - [J Am Acad Dermatol 2004 Nov;51\(5\):723](#), commentary can be found in [Am Fam Physician 2005 Mar 1;71\(5\):968](#)
- **addition of tacrolimus 0.1% ointment to salicylic acid 6% gel may improve global assessment ([level 2 \[mid-level\] evidence](#))**
  - 30 adults with generally symmetrical plaque-type psoriasis randomized to tacrolimus 0.1% ointment vs. vehicle, in addition to salicylic acid 6% gel, for 12 weeks in left-right comparison study; 24 patients (80%) completed the trial
  - combination treatment significantly improved sum of erythema, scale and thickness scores at 1, 2 and 8 weeks
  - Reference - [Arch Dermatol 2005 Jan;141\(1\):43](#)
- **treatments in order of decreasing efficacy for intertriginous psoriasis appear to be betamethasone 0.1%, calcipotriol 0.005%, pimecrolimus 1% and placebo ([level 2 \[mid-level\] evidence](#))**
  - based on randomized trial with some significant and non-significant differences
  - 80 adults with intertriginous psoriasis were randomized to 1 of 3 active treatments or placebo once daily for 28 days
  - decrease in mean modified PASI score was 86.4% with betamethasone 0.1%, 62.4% with calcipotriol 0.005%, 39.7% with pimecrolimus 1% and 21.1% with placebo
  - betamethasone significantly more effective than pimecrolimus, comparisons of calcipotriol and other active treatments did not reach statistical significance
  - Reference - [Arch Dermatol 2006 Sep;142\(9\):1138](#)
- **Mahonia aquifolium bark extract applied topically not proven**
  - study of 82 patients who used treatment vs. placebo ointment on alternative body halves for 4 weeks
  - treatment found to have statistically significant differences on patients' ratings but not physicians' ratings
  - considered safe with only 4 adverse reactions
  - Reference - [Phytomedicine 1996;3\(3\):231](#) in [Altern Ther Health Med 1997 Sep;3\(5\):97](#)
- urea 40% gel (Carmol 40) FDA approved to soften diseased nails (Monthly Prescribing Reference 2002 Jun:A-15)
- fish oil not effective in a few studies
  - fish oil contains n-3 polyunsaturated fatty acids EPA and DHEA (anti-inflammatory properties), but n-3 (marine oil) and n-6



(evening primrose oil) essential fatty acids showed no effect (Clin Exp Derm 1994;19:127)


- trial of very-long-chain fatty acids (found in fish oil) vs. corn oil showed no effect ([N Engl J Med 1993;328:1812](#) in Cortlandt Forum 1997 Mar;10(3):100,109-15)

## • Therapies for generalized psoriasis



- topical phototoxic drugs
  - psoralens trioxsalen (Trisoralen), methoxsalen (Oxsoalalen, Psoralen)
  - treatment with methoxsalen and pure ultraviolet A radiation (PUVA) associated with increased risk of malignant melanoma 15 years later, especially with > 250 treatments; possibility that part of increased incidence could be due to annual dermatologic surveillance ([N Engl J Med 1997 Apr 10;336\(15\):1041](#)), commentary can be found in [N Engl J Med 1997 Aug 14;337\(7\):502](#)
  - treatment with methoxsalen and PUVA associated with increased risk of very rare Merkel-cell carcinoma of skin with 3 cases reported in 1,380 patients prospectively followed over 20 years ([N Engl J Med 1998 Oct 22;339\(17\):1247](#))
- retinoids
  - acitretin (Soriatane)
    - synthetic retinoid, major metabolite of etretinate
      - 25-50 mg PO daily with food, may terminate therapy when lesions resolve
      - contraindicated in pregnancy, interferes with oral contraceptives, alcohol prolongs teratogenic effects
      - adverse reactions include hyperlipidemia, abnormal liver and other lab tests, cheilitis, alopecia, skin peeling, dry skin, nail disorder, pruritus, dry mouth, rhinitis, epistaxis, rash, hyperesthesia, paresthesia, paronychia, xerophthalmia, arthralgia, spinal hyperostosis, rigors, pseudotumor cerebri
      - Reference - Monthly Prescribing Reference 1997 Sep;A-24
    - **acitretin 25 mg/day appears to have fewer adverse effects than acitretin 50 mg/day ([level 2 \[mid-level evidence\]](#))**
      - based on retrospective analysis of 2 randomized trials
      - Reference - [Arch Dermatol 2006 Aug;142\(8\):1000](#)
    - shorter half-life than etretinate but may still have persistent teratogenic effect; both acitretin and etretinate studied in severe psoriasis and have 60-70% effectiveness and 40% relapse rates 12 weeks after treatment stopped; cost to pharmacist of 30 capsules is \$164.48 for 10 mg

and \$216.43 for 25 mg ([The Medical Letter 1997 Nov 7;39\(1039\):105](#))

- etretinate (Tegison withdrawn from market)
  - etretinate is another retinoid that appears to be as effective as acitretin and may have better tolerability, based on randomized trial with 168 patients ([Acta Derm Venereol 1989;69\(1\):35](#))
  - etretinate (Tegison) withdrawn from market as acitretin became available; retinoid with best results for erythrodermic or generalized pustular psoriatic disease, long half-life, teratogenic (Monthly Prescribing Reference 1998 Jan;A-39)
  - systematic retinoids as effective as oral psoralen plus ultraviolet A (PUVA) for reducing disease activity but associated with more side effects in randomized trial of 40 patients with generalized psoriasis ([Croat Med J 2002 Dec;43\(6\):707](#) in JAMA 2003 Mar 19;289(11):1351)
- immunosuppressants
  - methotrexate (Rheumatrex) - highly effective; may cause hepatotoxicity and pancytopenia
    - can be given PO or IM
    - **liver fibrosis appears common with methotrexate, especially if risk factors ([level 3 \[lacking direct evidence\]](#))**
      - based on cohort study without clinical outcomes
      - 71 patients taking methotrexate for psoriasis had 169 liver biopsies for monitoring
      - 26 patients had risk factors including diabetes mellitus type 2, overweight, alcohol over-consumption, and chronic hepatitis B or C
      - comparing patients with vs. without risk factors
        - 96% vs. 58% developed fibrosis (p = 0.012) with median cumulative methotrexate dose 1,500 mg vs. 2,100 mg
        - 38% vs. 9% had severe (stage 3-4) fibrosis (p = 0.0012) with median cumulative methotrexate dose 1,600 mg vs. 1,900 mg
      - Reference - [J Hepatol 2007 Jun;46\(6\):1111](#)
    - family physician's guide to monitoring methotrexate therapy can be found in [Am Fam Physician 2000 Oct 1;62\(7\):1607](#)
    - handout on taking methotrexate can be found in [Am Fam Physician 2000 Oct 1;62\(7\):1614](#)
  - cyclosporine (Sandimmune, Neoral) - highly effective; renal toxicity limits long-term use
    - discussion of cyclosporine in treatment of psoriasis can be found in [Mayo Clin Proc 1996 Dec;71\(12\):1182](#)
    - Neoral (cyclosporine for microemulsion) approved for severe, recalcitrant plaque psoriasis (Monthly Prescribing Reference 1997 Sep;A-28)




- SangCya oral solution has been recalled due to decreased availability compared to Neoral when taken with apple juice ([FDA Talk Paper 2000 Jul 10](#))
- long-term risks of cyclosporine in psoriasis patients include renal toxicity, hypertension, infections, increased risk of malignancy ([Arch Dermatol 1996 Jun;132\(6\):623](#) in Cortlandt Forum 2000 Mar;13(3);124,145-26), editorial can be found in [Arch Dermatol 1996 Jun;132\(6\):692](#); SangCya was generic formulation of cyclosporine with improved oral bioavailability over Sandimmune, SangCya appears bioequivalent and therapeutically equivalent to Neoral ([The Medical Letter 1999 May 21;41\(1053\):47](#))
- cyclosporine associated with increased risk for squamous cell carcinoma in nested case-control study among cohort of psoriasis patients followed after PUVA therapy ([Lancet 2001 Sep 29;358\(9287\):1042](#)  [EBSCOhost Full Text](#))
- **methotrexate and cyclosporine have similar efficacy**
  - 88 patients with moderate-to-severe chronic plaque psoriasis randomized to methotrexate (initially 15 mg/week) vs. cyclosporine (initially 3 mg/kg/day) for 16 weeks and followed for additional 36 weeks
  - 12 methotrexate patients (27%) discontinued due to reversible elevations in liver enzymes, 1 cyclosporine patient (2%) discontinued due to elevated bilirubin
  - psoriasis area-and-severity index decreased from 13.4-14 to 3.8-5 with treatment, no significant difference between treatments in this measure, other efficacy outcomes or quality of life
  - Reference - [N Engl J Med 2003 Aug 14;349\(7\):658](#), summary can be found in [Am Fam Physician 2004 Mar 1;69\(5\):1270](#)
- hydroxyurea reserved only for extensive severe psoriasis
- alefacept (Amevive)
  - alefacept (Amevive) FDA approved for adults with moderate to severe plaque psoriasis, based on 2 randomized placebo-controlled trials with 1,060 adults with chronic plaque psoriasis ([FDA Talk Paper 2003 Jan 31](#))
  - alefacept (Amevive) provided as single-use vials for injection, given as 7.5 mg IV or 15 mg IM once weekly for 12 weeks, repeat course may be given if CD4 counts are normal and at least 12 weeks between courses, withhold doses if CD4 count < 250 cells/mcL (PDR Monthly Prescribing Guide 2003 Mar;2(3):8)
  - **alefacept (Amevive) fairly effective for moderate to severe psoriasis and has produced some long remissions**, alefacept has not been compared to other therapies, costs about \$8,400 for 7.5 mg/week IV or \$11,940 for 15 mg/week IM for 12 weeks, long-term safety unknown ([The Medical Letter 2003 Apr 14;45\(1154\):31](#))


- **alefacept 15 mg IM weekly for 12 weeks associated with statistically significant improvements in some quality of life outcomes**
  - 507 adults with chronic plaque psoriasis of at least 10% of body surface area for at least 1 year were randomized to alefacept 10 mg or 15 mg vs. placebo IM weekly for 12 weeks, 484 (95%) followed up at 24 weeks
  - patients completed 3 quality of life questionnaires, alefacept 15 mg significantly improved symptoms on 1 of 3 questionnaires and improved physical component of SF-36 survey
  - other findings did not reach statistical significance
  - Reference - [Dermatology 2003;206\(4\):307](#)
  - alefacept associated with dose-related improvements in Psoriasis Area Severity Index (PASI) in this trial ([Arch Dermatol 2003 Jun;139\(6\):719](#) in JAMA 2003 Sep 3;290(9):1148)
- **alefacept associated with improvement in chronic plaque psoriasis**
  - alefacept selectively targets CD45RO+ memory effector T lymphocytes
  - 229 patients with chronic psoriasis were randomized to alefacept 0.025 mg/kg vs. 0.075 mg/kg vs. 0.15 mg/kg vs. placebo IV weekly for 12 weeks, follow-up for additional 12 weeks
  - comparing 0.025 mg/kg vs. 0.075 mg/kg vs. 0.15 mg/kg vs. placebo, mean reduction in psoriasis area-and-severity scores 38% vs. 53% vs. 53% vs. 21%
  - 24% alefacept patients vs. 5% placebo patients were clear or almost clear at 24 weeks (NNT 5) although the placebo patients that had clearing had received other systemic therapy
  - Reference - [N Engl J Med 2001 Jul 26;345\(4\):248](#), editorial can be found in N Engl J Med 2001 Jul 26;345(4):284, commentary can be found in N Engl J Med 2001 Dec 20;345(25):1853
  - alefacept (Amevive) contraindicated in HIV infection ([FDA MedWatch 2005 Nov 10](#))
  - case report of *Mycobacterium avium* complex olecranon bursitis in patient treated with alefacept can be found in [Mayo Clin Proc 2005 Nov;80\(11\):1530 full-text](#)
- tumor necrosis factor inhibitors highly effective in randomized trials
  - etanercept (Enbrel)
    - etanercept (Enbrel) FDA approved for chronic moderate-to-severe plaque psoriasis (Monthly Prescribing Reference 2004 Jun:A-14)
    - **etanercept effective but may have limited cost-effectiveness**

- systematic review of 3 randomized trials of etanercept with 1,347 patients with moderate to severe chronic plaque psoriasis
- etanercept more effective than placebo or efalizumab
- most common adverse effects are injection site reactions
- etanercept likely cost-effective only in patients with poor quality of life or at risk of hospitalization
- Reference - [Health Technol Assess 2006 Nov;10\(46\):1 full-text](#)
- **etanercept 50 mg subcutaneously twice weekly improves psoriasis, depressive symptoms and fatigue at 12 weeks ([level 1 \[likely reliable\] evidence](#))**
  - 620 adults with moderate to severe psoriasis of at least 10% total body surface area were randomized to etanercept 50 mg (two 25-mg injections per dose) vs. placebo subcutaneously twice weekly for 12 weeks
    - 2 placebo patients withdrew consent
    - 98% etanercept group and 95% placebo group completed 12 weeks of therapy
  - 47% etanercept vs. 5% placebo patients achieved 75% or greater improvement in psoriasis area and severity index (PASI) score at 12 weeks ( $p < 0.0001$ , NNT 3, 95% CI 2-3)
  - other outcomes comparing etanercept vs. placebo at 12 weeks
    - 74% vs. 14% had at least 50% improvement in PASI score (NNT 2)
    - 21% vs. 1% had at least 90% improvement in PASI score (NNT 5)
    - 58% vs. 43% had clinically significant improvement in fatigue ( $p = 0.0001$ , NNT 7)
    - etanercept patients with depressive symptoms had greater improvements in overall depressive symptom scales and in feelings of guilt, irritability, interest, appearance, work and activities, sleep, and sexual symptoms
  - most common specific adverse event was injection site reaction (10.9% vs. 0.7%, NNH 9)
  - 27.9% vs. 23.2% patients had at least 1 infection (NNH 21)
  - Reference - [Lancet 2006 Jan 7;367\(9504\):29](#)  [EBSCOhost Full Text](#), editorial can be found in [Lancet 2006 Jan 7;367\(9504\):6](#)  [EBSCOhost Full Text](#)

- **etanercept reduces severity of psoriasis over 24 weeks**
  - 672 patients with clinically stable plaque psoriasis of at least 10% of body surface were randomized to placebo vs. etanercept 25 mg once weekly vs. 25 mg twice weekly vs. 50 mg twice weekly subcutaneously for 12 weeks
  - improvement at least 75% in psoriasis area and severity index (PASI) at 12 weeks occurred in
    - 4% placebo group
    - 14% 25 mg weekly group (NNT 10)
    - 34% 25 mg twice weekly group (NNT 4)
    - 49% 50 mg twice weekly group (NNT 3)
  - active treatments continued and 25% 25 mg weekly vs. 44% 25 mg twice weekly vs. 59% 50 mg twice weekly had at least 75% improvement in PASI at 24 weeks
  - Reference - [N Engl J Med 2003 Nov 20;349\(21\):2014](#), commentary can be found in [Am Fam Physician 2004 Jun 1;69\(11\):2675](#)
  - etanercept improved health-related quality of life in this trial ([J Am Acad Dermatol 2005 Nov;53\(5\):887](#))
- **etanercept reduces severity of psoriasis over 24 weeks**
  - 112 adults with chronic plaque psoriasis of at least 10% body surface area were randomized to etanercept 25 mg vs. placebo subcutaneously twice weekly for 24 weeks
  - comparing etanercept vs. placebo
    - 30% vs. 2% reached PASI of 75 (NNT 4) at 12 weeks
    - 77% vs. 3% reached PASI of 50 (NNT 2) at 24 weeks
    - 21% vs. 0 reached PASI of 90 (NNT 5) at 24 weeks
    - Reference - [Arch Dermatol 2003 Dec;139\(12\):1627](#) in QuickScan Reviews in Fam Pract 2004 Jul 19;29(12):19
- **etanercept appears beneficial for patients with psoriatic arthritis**
  - 60 patients with psoriatic arthritis and psoriasis randomized to etanercept 25 mg subcutaneously twice weekly vs. placebo for 12 weeks
  - comparing etanercept vs. placebo
    - 87% vs. 23% achieved Psoriatic Arthritis Response Criteria (NNT 2)
    - 73% vs. 13% met American College of Rheumatology preliminary criteria for improvement (ACR20) (NNT 2)
    - 38 patients could be checked for psoriasis skin activity and 26% vs. 0 had at least

75% improvement in psoriasis area and severity index (PASI) ( $p = 0.015$ , NNT 5), median PASI improvement 46% vs. 9%


- Reference - [Lancet 2000 Jul 29;356\(9227\):385](#)  [EBSCOhost Full Text](#), commentary can be found in Lancet 2000 Dec 16;356(9247):2095
- NICE guidance on efalizumab and etanercept for treatment of adults with psoriasis can be found at [NICE 2006 Jul:TA103](#) or at [National Guideline Clearinghouse 2007 Mar 19:10310](#)
- infliximab
  - infliximab (Remicade) FDA approved for chronic severe plaque psoriasis (Monthly Prescribing Reference 2006 Nov:A-18)
  - **infliximab effective for induction and maintenance of moderate to severe psoriasis ([level 1 \[likely reliable\] evidence](#))**
    - 378 patients with moderate to severe plaque psoriasis were assigned to infliximab 5 mg/kg vs. placebo infusions at weeks 0, 2 and 6 then every 8 weeks until week 46
    - placebo-treated patients crossed over to infliximab at week 24
    - treatment assignment not described as randomized but used a minimization algorithm with biased coin assignment
    - 80% infliximab vs. 3% placebo patients had at least 75% improvement in psoriasis area and severity index (PASI) at week 10 (NNT 2), 82% vs. 4% at week 24 (NNT 2)
    - 57% infliximab vs. 1% placebo patients had at least 90% improvement in PASI at week 10 (NNT 2), 58% vs. 1% at week 24 (NNT 2)
    - 83% infliximab vs. 4% placebo patients had minimal or cleared psoriasis on physician assessment at week 10 (NNT 2), 74% vs. 3% at week 24 (NNT 2)
    - Reference - [Lancet 2005 Oct 15;366\(9494\):1367](#)  [EBSCOhost Full Text](#), editorial can be found in [Lancet 2005 Oct 15;366\(9494\):1333](#)  [EBSCOhost Full Text](#)
  - **infliximab highly effective in small trial**
    - 33 patients with moderate to severe plaque psoriasis randomized to placebo vs. infliximab 5 mg/kg vs. infliximab 10 mg/kg IV at 0, 2 and 6 weeks
    - primary outcome was physician's global assessment score at 10 weeks
    - 3 patients (9%) dropped out but intention to treat analysis used


- comparing placebo vs. infliximab 5 mg/kg vs. infliximab 10 mg/kg, 18% vs. 82% vs. 91% were considered responders based on > 50% clearing, median time to response 4 weeks
    - no serious adverse effects, 64% of patients receiving 10 mg/kg reported headache compared to only 9-18% of other groups
    - Reference - [Lancet 2001 Jun 9;357\(9271\):1842](#)  
 [EBSCOhost Full Text](#)
- efalizumab
  - efalizumab (Raptiva) FDA approved for moderate to severe chronic plaque psoriasis in adults; 0.7 mg/kg subcutaneous conditioning dose, then 1 mg/kg (maximum 200 mg) subcutaneously weekly; manufacturer recommended monitoring platelet counts; most common adverse effects are mild constitutional symptoms (headache, chills, fever, nausea, myalgia) after first 1-2 doses, rarely thrombocytopenia, 0.7% rate of worsening of psoriasis (vs. none with placebo), serious infections have been reported ([The Medical Letter 2003 Dec 8;45\(1171\):97](#)), correction can be found in [The Medical Letter 2004 Jan 19;46\(1174\):8](#)
  - **etanercept may be effective but may have limited cost-effectiveness**
    - systematic review of 5 randomized trials of efalizumab with 2,963 patients with moderate to severe chronic plaque psoriasis
    - all 5 trials evaluated efalizumab 1 mg/kg subcutaneously once weekly, evidence limited to 12 weeks
    - trials generally good quality, but 3 trials poorly reported
    - etanercept more effective than placebo or efalizumab
    - most common adverse effects are headache, chills, nausea, myalgia, pain and fever
    - efalizumab likely cost-effective only in patients with poor quality of life or at risk of hospitalization
    - Reference - [Health Technol Assess 2006 Nov;10\(46\):1 full-text](#)
  - **efalizumab 1 mg/kg subcutaneously weekly improved moderate-to-severe plaque psoriasis over 12 weeks**
    - 556 patients with stable moderate to severe plaque psoriasis covering at least 10% of body surface for at least 6 months were randomized to efalizumab 1 mg/kg vs. placebo subcutaneously weekly for 12 weeks
    - comparing efalizumab vs. placebo
      - 27% vs. 4% achieved at least 75% improvement in psoriasis-area-and-severity index (NNT 5)
      - 3% vs. 1% adverse events requiring drug discontinuation (NNH 50)
      - 27% vs. 23% diagnosed infections (NNH 25)
    - Reference - [JAMA 2003 Dec 17;290\(23\):3073](#), editorial can be found in [JAMA 2003 Dec 17;290\(23\):3133](#),



correction can be found in JAMA 2004 Mar 3;291(9):1070



- **efalizumab improves moderate-to-severe plaque psoriasis**
  - efalizumab is a targeted T cell modulator
  - 597 patients with moderate to severe plaque psoriasis covering at least 10% of body surface for at least 6 months were randomized to efalizumab 1 or 2 mg/kg vs. placebo subcutaneously weekly for 12 weeks
  - improvement of at least 75% in psoriasis-area-and-severity index at 12 weeks occurred in 5% with placebo vs. 22% with efalizumab 1 mg (NNT 6) vs. 28% with efalizumab 2 mg (NNT 5)
  - among patients who had at least 75% improvement at 12 weeks and were crossed over to opposite treatment for 12 more weeks, continued improvement was maintained in 20% switched to placebo vs. 77% switched to efalizumab
  - Reference - [N Engl J Med 2003 Nov 20;349\(21\):2004](#), commentary can be found in [Am Fam Physician 2004 Mar 1;69\(5\):1223](#)
- **efalizumab associated with significantly improved patient-reported outcomes at 12 weeks (level 2 [mid-level] evidence)**
  - 793 patients aged 18-75 years old with moderate to severe plaque psoriasis randomized to efalizumab (Raptiva) 1 mg/kg vs. placebo subcutaneously once weekly for 12 weeks
    - patients had at least 6-month history of plaque psoriasis and involvement of > 10% of total body surface area, but were excluded if experiencing clinically significant disease flare at screening or enrollment
    - during study period, a protocol amendment restricted enrollment to high-need patients defined as those for whom 2 or more current systemic therapies were ineffective, poorly tolerated or contraindicated
    - 0.7 mg/kg used for first dose
  - allocation concealment not described
  - intent-to-treat analysis included all randomized patients who received at least 1 dose
  - outcomes significantly improved for efalizumab group compared to placebo for Dermatology Life Quality Index, Short Form-36, Psoriasis Symptom Assessment, Patient's Global Psoriasis Assessment and visual analog scale for itching
  - Reference - [BMC Dermatology 2005 Dec 16;5:13 full-text](#)
- check platelet counts monthly for 3 months then every 3 months (Prescriber's Letter 2003 Dec;10(12):69)
- efalizumab (Raptiva) labeling updated with warning of reports of immune-mediated hemolytic anemia, thrombocytopenia, serious

- infections (including necrotizing fasciitis, tuberculous pneumonia, bacterial sepsis with seeding of distant sites, severe pneumonia with neutropenia), and worsening of infection (e.g. cellulitis, pneumonia) despite antimicrobial treatment ([FDA MedWatch 2005 Jul 20](#))
- estimated 0.22% incidence of immune thrombocytopenia with efalizumab ([level 2 \[mid-level\] evidence](#))
    - industry-developed report of 2,762 patients treated with efalizumab within clinical development program
    - 8 (0.29%) patients had thrombocytopenia documented but 2 of these were attributed to other causes
    - estimated incidence of 6 of 2,762 (0.22%) (95% confidence interval 0.08-0.47%) was higher than expected incidence without efalizumab (1 in 62,000 per year)
    - Reference - [Ann Intern Med 2005 Nov 15;143\(10\):761](#)  
 [EBSCOhost Full Text](#)
    - NICE guidance on efalizumab and etanercept for treatment of adults with psoriasis can be found at [NICE 2006 Jul:TA103](#) or at [National Guideline Clearinghouse 2007 Mar 19:10310](#)
  - weekly costs of biologic agents for psoriasis for 65-kg patient
    - alefacept (Amevive) 15 mg IM once weekly \$979.62
    - efalizumab (Raptiva) 0.7 mg/kg subcutaneously once then 1 mg/kg subcutaneously once weekly \$334.59
    - etanercept (Enbrel) 50 mg subcutaneously twice weekly (once weekly after 12 weeks) \$669.76
    - infliximab (Remicade) 5 mg/kg IV on weeks 0, 2 and 6 then every 8 weeks, \$1,987.67, only FDA approved for psoriatic arthritis
    - Reference - [Treatment Guidelines from The Medical Letter 2005 Jul;3\(35\):49](#)
  - review of biologic therapy for psoriasis (infliximab, etanercept, adalimumab, efalizumab, alefacept) can be found in [Adv Stud Med 2005 Apr;5\(4\):195 PDF](#)
  - benoxaprofen (Oraflex, not available in United States) inhibits leukotrienes and was highly effective in single randomized trial with 40 patients ([Arch Dermatol 1983 Jul;119\(7\):548](#))
  - **human interleukin-12/23 monoclonal antibody may be effective ([level 2 \[mid-level\] evidence](#))**
    - based on randomized trial with allocation concealment not stated
    - 320 patients with moderate-to-severe plaque psoriasis randomized to 1 of 4 doses of interleukin-12/23 monoclonal antibody (45 mg once, 90 mg once, 45 mg weekly for 4 doses, 90 mg weekly for 4 doses) or placebo
    - at least 75% improvement in psoriasis area-and-severity index at 12 weeks reported in
      - 2% placebo group
      - 52% with 45 mg once
      - 59% with 90 mg once
      - 67% with 45 mg weekly
      - 81% with 90 mg weekly

- Reference - [N Engl J Med 2007 Feb 8;356\(6\):580](#), commentary can be found in [N Engl J Med 2007 May 10;356\(19\):2003](#)
  - interleukin-4 therapy promising in small uncontrolled study; 20 patients with moderate-to-severe psoriasis were treated with interleukin-4 subcutaneously in dose-escalation study, 19 patients had > 50% improvement at 6 weeks ([Nat Med 2003 Jan;9\(1\):40](#)  [EBSCOhost Full Text](#) in J Watch Online 2003 Jan 28)
- glitazones (pioglitazone [Actos] and rosiglitazone [Avandia]) associated with improvement in psoriasis compared to placebo in preliminary results of small trials (Prescriber's Letter 2004 Aug;11(8):43)
- no evidence to guide treatment of acute guttate psoriasis; only 1 trial identified, 21 hospitalized patients randomized to IV infusion of n-3 fatty acid rich lipid emulsion vs. placebo emulsion with n-6 fatty acids, n-3 preparation appeared to be of some benefit; systematic review last updated 2000 Jan 3 ([Cochrane Library 2000 Issue 2:CD001213](#))

## Other management:

- ultraviolet radiation has antimitotic effect resulting in thinning of psoriatic plaques
  - Goeckerman technique - crude coal tar or derivative applied to lesions for variable periods of time then washed off, lesions exposed to UVB light in ranged of 280-320 nm, treat 2-3 times/week with improvement by third week; side effects - burns, 100% cancer at 70-90)
  - psoralen plus pure UVA photochemotherapy (PUVA) - patient exposed to 320-400 nm UVA light 2 hours after taking PO psoralens, must avoid sun
  - topical psoralen-UVA therapy have been described in 35 patients ([Mayo Clin Proc 1998 May;73\(5\):407](#))
  - **bath PUVA and saltwater UV-B phototherapy results in higher response rates than tap-water UV-B phototherapy or UV-B phototherapy alone ([level 1 \[likely reliable\] evidence](#))**
    - based on randomized trial
    - 1,241 patients with stable psoriasis and PASI score  $\geq 7$  or involving  $\geq 15\%$  body surface area were randomized to 1 of 4 treatments 4 times weekly for up to 8 weeks
      - UV-B irradiation without preceding bath
      - tap-water bath followed by UV-B
      - saltwater bath (25%) followed by UV-B
      - bath PUVA was psoralens dissolved in warm-water bath then exposure to UV-A irradiation
    - 82 patients (6.6%) withdrew consent before treatment started and were excluded from analysis, rates varied from 3.5% with saltwater UV-B to 10.3% with UV-B alone
    - therapeutic success defined as at least 50% reduction in PASI or involved body surface area
      - UV-B alone had 43.3% success rate
      - tap-water UV-B had 60.7% success rate (NNT 6 vs. UV-B alone)

- saltwater UV-B had 74.9% success rate (NNT 7 vs. tap-water UV-B, NNT 4 vs. UV-B alone)
    - bath PUVA had 78.4% success rate (NNT 6 vs. tap-water UV-B, NNT 3 vs. UV-B alone)
    - Reference - [Arch Dermatol 2007 May;143\(5\):586](#)
  - British Association of Dermatologists guidelines for topical PUVA can be found in [Br J Dermatol 2000 Jan;142\(1\):22](#)  [EBSCOhost Full Text PDF](#)
  - Ingram technique - topical application of anthralin with exposure to light
  - UVA therapy has been attained via "climatotherapy" at Dead Sea due to unique geographic location 1300 ft below sea level with exposure to high-intensity UVA light (Int J Dermatol 1995;33:134 in Scientific American Medicine 1997;I,2,III:8,12 in Cortlandt Forum 1997 Aug;10(8):21)
  - turbo-PUVA (protection of uninvolved skin by dihydroxyacetone to allow higher UV-A exposures) associated with faster clearing and fewer treatments in pilot study of 30 psoriatic patients with 6 treatment groups ([Arch Dermatol 1999 May;135\(5\):540](#) in JAMA 1999 Aug 18;282(7):617)
  - excessive worrying associated with slower response to PUVA therapy in cohort of 112 patients with chronic plaque psoriasis ([Arch Dermatol 2003 Jun;139\(6\):752](#) in JAMA 2003 Sep 24;290(12):1559)
  - guidelines for dosimetry and calibration in ultraviolet radiation therapy from British Association of Dermatologists can be found in [Br J Dermatol 2002 May;146\(5\):755](#)  [EBSCOhost Full Text](#) or at [National Guideline Clearinghouse 2005 Aug 15:6620](#)
  - guidelines on eye protection for PUVA patients 1999 from [British Association of Dermatologists](#)
- **inconsistent evidence for comparative efficacy of oral psoralen UV-A and narrowband UV-B**
  - based on 3 controlled trials
  - **oral psoralen UV-A twice weekly more effective than narrowband UV-B twice weekly** in randomized trial with 93 patients with chronic plaque psoriasis ([Arch Dermatol 2006 Jul;142\(7\):836](#))
  - **narrowband UV-B phototherapy as effective as oral 8-methoxypsoralen plus UV-A therapy (PUVA)**
    - 45 patients with chronic plaque psoriasis randomized to whole-body threshold erythemogenic dose of narrowband UV-B 3 times weekly vs. PUVA 2 times weekly until completely clear
    - no significant differences in time to clearance, days in remission, erythema, pruritus or polymorphic light eruption
    - only PUVA patients developed nausea
    - Reference - [Arch Dermatol 2003 Mar;139\(3\):325](#) in JAMA 2003 Jun 25;289(24):3224
  - **narrowband UV-B therapy may be as effective as PUVA with less toxicity for some patients with psoriasis**
    - 25 patients with chronic plaque-type psoriasis underwent paired irradiations with threshold erythemogenic doses of narrowband UV-B vs. PUVA to dorsal surfaces 3 times/week until clearing or maximum 18 exposures

- 84% vs. 89% reduction in Psoriasis Area and Severity Index (PASI) scores ( $p = 0.17$ ), PASI scores responded significantly better to PUVA among patients with higher baseline PASI scores ( $p = 0.03$ )
- Reference - [Arch Dermatol 1999 May;135\(5\):519](#) in JAMA 1999 Jul 28;282(4):312i, summary can be found in [Am Fam Physician 1999 Oct 1;60\(5\):1524](#)
- **targeted UV-B phototherapy associated with some clinical improvement in localized psoriasis (level 2 [mid-level] evidence)** in randomized dose comparison with 14 patients with stable, localized, plaque-type psoriasis; 77% patients had clearance of lesions with highest dose which was 6 times minimal erythema dose 3 times weekly ([Arch Dermatol 2005 Dec;141\(12\):1542](#))
- pulse dye laser treatment FDA approved in treatment of psoriasis ([Am Fam Physician 2001 Oct 1;64\(7\):1280](#))
  - discussion of use of 208-nm excimer laser for psoriasis and vitiligo can be found in [Clin Dermatol 2006 Jan-Feb;24\(1\):33](#)
- **saline spa water therapy not effective compared to ultraviolet (UV-B) therapy**; 71 adults with psoriasis randomized to saline spa water therapy vs. UV-B phototherapy vs. combined therapy for 5 days/week for 21 days, severity scores decreased by 29% vs. 64% vs. 55% ([Arch Dermatol 2001 Aug;137\(8\):1035](#) in JAMA 2001 Nov 28;286(20):2524)

[smoking cessation](#) - smoking associated with clinical severity of psoriasis in dose-dependent fashion in study of 818 adults with psoriasis ([Arch Dermatol 2005 Dec;141\(12\):1580](#) in JAMA 2006 Feb 15;295(7):742)

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## Interesante artículo publicado recientemente en relación al tema de nuestra revisión de esta edición

### **Does PUVA-therapy increase the risk of cataracts? A 25-year prospective study by Stern.**

Psoralens taken orally before UVA sessions are transported in the blood to the crystalline lens (eye lens) where they can, when exposed to UVA, bind to the pyrimidine bases of DNA and RNA, which results in a photo-oxidation reaction and causes interchain cross-linkages between the nucleic acids. Because the lens never sheds its cells, the psoralen bound to the macromolecules is susceptible to accumulating over the course of sessions which increases the risk of irreversible opacification. In some but not all animal species, exposure of the unprotected eye to PUVA has been shown to accelerate the development of ocular lens opacities. Studies on the risk of cataracts in patients who have had PUVA have given discordant results. The number of patients and follow-up periods are often low and the definition of cataracts varies from one to another. Stern's is the only retrospective study to involve a large number of patients. The results at 5 and 10 years showed no correlation between the risk of cataracts and the accumulated dose of PUVA. The follow-up period has now reached 25 years. Out of 1237 patients in the initial group who had had an ophthalmologic examination, 614 have had at least one more ophthalmologic examination since 1993. The prevalence of ocular anomalies and cataracts obviously increased as the studies population grew older. However, there does not appear to be any

correlation between the accumulated exposure doses. The study did not allow the authors to officially eliminate a small increase in risk which does not seem to be proportional to the number of sessions but appears from the first sessions onwards. It also does not exclude the possibility of a longer-term risk. However, the results are still very reassuring despite these doubts which mean that we should not stop taking ocular protective measures.

*Malanos D, Stern RS. [Psoralen plus ultraviolet A does not increase the risk of cataracts: a 25-year prospective study](#). J Am Acad Dermatol. 2007 Aug; 57(2):231-7.*