

Visit [acneandrosacea.org](http://acneandrosacea.org)  
to Become an AARS  
Member and  
Donate Now on  
[acneandrosacea.org/donate](http://acneandrosacea.org/donate)

**Our Officers**

**J. Mark Jackson, MD**  
AARS President

**Andrea Zaenglein, MD**  
AARS President-Elect

**Joshua Zeichner, MD**  
AARS Treasurer

**Bethanee Schlosser, MD**  
AARS Secretary

**James Del Rosso, DO**  
Director

**Emmy Graber, MD**  
Director

**Jonathan Weiss, MD**  
Director

**Stacey Moore**  
Executive Director  
[info@aarsmember.org](mailto:info@aarsmember.org)

**TABLE OF CONTENTS**

**Industry News**

[Will telemedicine impact the future of acne care?](#) ..... 2  
[This is why sarecycline is so effective against acne](#) ..... 2

**New Medical Research**

[Retrospective analysis of 19 papulopustular rosacea cases](#) ..... 3  
[Efficacy of high-dose intralesional triamcinolone for hidradenitis suppurativa](#) ..... 3  
[Enhanced pulsed dye laser for facial rejuvenation](#) ..... 3  
[Combination of surgery and photodynamic therapy for the treatment of cystic acne](#) ..... 4  
[Ablative fractional carbon dioxide laser and autologous platelet-rich plasma](#) ..... 4  
[Ultrasound-assisted intralesional corticosteroid infiltrations for patients with HS](#) ..... 5  
[Irrelevance of Panton-Valentine leukocidin in hidradenitis suppurativa](#) ..... 5  
[Botulinum toxin type b for hidradenitis suppurativa](#) ..... 5  
[In which rosacea patients should Demodex in the eyelashes be investigated?](#) ..... 6  
[Examining quality of life after treatment with azelaic and pyruvic acid peels](#) ..... 6

**Clinical Reviews**

[The effects of green tea on acne vulgaris: A systematic review and meta-analysis](#) .. 7  
[Biochemical and physical actions of hyaluronic acid](#) ..... 7  
[A strategic review on the involvement of receptors, transcription factors](#) ..... 8  
[Metformin versus the combined oral contraceptive pill](#) ..... 8  
[Psychodermatology of acne: Dermatologist's guide to inner side of acne](#) ..... 9  
[Reviewing the Global Burden of acne](#) ..... 10  
[Effects of diet on acne and its response to treatment](#) ..... 10  
[The use of isotretinoin for acne - an update](#) ..... 10  
[Recent advances in understanding and managing acne](#) ..... 11  
[Acute inflammatory demodex-induced pustulosis in an immunocompetent patient](#) ..... 11  
[Isotretinoin and the kidney: Opportunities and threats](#) ..... 11



## Industry News

**Will telemedicine impact the future of acne care?** Barry J. August 14, 2020. Dermatology Times. <https://www.dermatologytimes.com/view/will-telemedicine-impact-the-future-of-acne-care>

Will the current practice of using telemedicine for acne care have an impact on the future of dermatology? We spoke with Julie Harper, M.D., owner and president of the Dermatology and Skin Cancer Center of Birmingham in Alabama, on the topic. "I think it's going to have an impact," says Dr. Harper. Hear her reasons in the video interview below.

More from Dr. Harper:

- [Don't forget acne patients during COVID-19](#)
- [Telemedicine for acne: Good or bad?](#)
- [How has telemedicine impacted patient visits?](#)
- [Patient education easier via virtual visits](#)



**This is why sarecycline is so effective against acne.** August 3, 2020. DermWire, Practical Dermatology. <https://practicaldermatology.com/news/this-is-why-sarecycline-is-so-effective-against-acne?c4src=news-landing:feed>

Unlike other tetracycline drugs, sarecycline binds to mRNA in bacterial ribosomes. Researchers at Yale and the University of Illinois-Chicago have discovered how Sarecycline's unique chemical structure makes it so effective against acne. Unlike other tetracycline drugs, sarecycline binds to messenger RNA (mRNA) in bacterial ribosomes. Sarecycline and other tetracyclines treat acne by inhibiting bacterial protein synthesis. They block ribosome function in *Cutibacterium acnes*. "We show that the structure of sarecycline matters," says Christopher Bunick, MD, PhD, associate professor of dermatology at Yale and co-corresponding author of the study, in a news release. "This mode of action has never been seen before in this class of antibiotics, and suggests that sarecycline has unique properties among the tetracycline class." Importantly, the researchers found an explanation for why sarecycline has such a low drug-resistance profile, boosting its effectiveness. Sarecycline thwarts TetM, a ribosome guardian protein that protects bacteria from outside interference. Their findings appear in the Proceedings of the National Academy of Science. Bunick and his team said the broader implication of the study is that structural knowledge of tetracycline compounds could be used to engineer better antibiotics. "This could result in therapies with better or longer-lasting efficacy, fewer side effects, and lower drug resistance," Bunick says. "Future agents could be used not just in acne, but potentially in

other skin disorders and infections as well.” The co-corresponding author of the study was Yury Polikanov of the University of Illinois-Chicago. Zahra Batool of UIC was first author of the study and Ivan Lomakin of Yale was a co-author. The National Institutes of Health, State of Illinois startup funds, and a research grant from Almirall funded the research. Bunick has received honoraria for consulting and speaking for Almirall.

## New Medical Research

**Retrospective analysis of 19 papulopustular rosacea cases treated with oral minocycline and supramolecular salicylic acid 30% chemical peels.** Wang L, Li XH, Wen X, et al. *Exp Ther Med.* 2020 Aug;20(2):1048-1052. doi: 10.3892/etm.2020.8740. Epub 2020 May 12. <https://pubmed.ncbi.nlm.nih.gov/32765658/>

Papulopustular rosacea (PPR) is characterized by central facial erythema and transient papules and/or pustules, with or without telangiectases. The treatment of PPR is challenging due to the unclear and complex pathogenesis. In the present retrospective study, patients with PPR treated with oral minocycline and supramolecular salicylic acid (SSA) 30% chemical peels enrolled between June 2018 and June 2019 were evaluated. All patients were treated with 50 mg minocycline twice a day and SSA 30% twice a month. A total of 19 patients were enrolled and all received the therapy for 12 weeks. A significant reduction of rosacea severity was observed by Investigator Severity Assessment (ISA) after treatment; the mean score reduced from  $3.32 \pm 0.6$  at baseline to  $0.89 \pm 0.7$  ( $P < 0.01$ ) at 12 weeks. After 12 weeks, all patients achieved at least a 'moderate response' and 17 patients (89.47%) obtained 'excellent improvement' in the Investigator Global Assessment of efficacy. No obvious adverse reactions were observed during each patient's visit. In conclusion, the combination treatment of minocycline and SSA 30% was an effective therapy for PPR. The limitation of the present study was that it was a retrospective analysis; more high-quality, prospective, blinded, controlled clinical trials are required to evaluate the efficacy based on the current study.

**Efficacy of high-dose intralesional triamcinolone for hidradenitis suppurativa.** Garelik J, Babbush K, Ghias M, Cohen SR. *Int J Dermatol.* 2020 Aug 17. doi: 10.1111/ijd.15124. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32808305/>

Background: Hidradenitis suppurativa (HS) is a chronic inflammatory disorder of hair follicles characterized by recurrent, painful nodules, abscesses, and sinus tracts ("tunnels") typically refractory to treatment. This debilitating condition results in poor quality of life due to high disease burden. Intralesional triamcinolone (ILTAC) is a standard of care for acute inflammation and drainage associated with HS; however, the optimal therapeutic dose has not been determined. We investigated the utility of high-dose ILTAC 20 mg/ml (ILTAC-20) or 40 mg/ml (ILTAC-40), for inflammatory lesions of HS. Methods: A retrospective chart review and telephone questionnaire included HS patients treated with high-dose ILTAC-20 or ILTAC-40 between April and December 2018. Patients with Hurley stages I-III were included. Data were obtained from electronic medical records and telephone interviews. A short questionnaire pertained to satisfaction with therapy, changes of disease state, and modifications in quality of life. Results: Of 54 patients interviewed, the average age was  $36.9 \pm 11.6$  years; 36 (66.7%) were female. Forty patients (76.9%) were very satisfied ( $n = 19$ ) or satisfied ( $n = 21$ ) with high-dose ILTAC therapy. Fifty patients (92.6%) demonstrated improvements in disease state, and 41 patients (75.9%) experienced enhanced quality of life. Forty-four patients (86.3%) were amenable to additional injections of high-dose ILTAC, if clinically indicated. No adverse effects of therapy were reported. Conclusions: The majority of patients reported improvements in disease state, quality of life, and overall satisfaction after administration of high-dose ILTAC (20-40 mg/ml). These findings support the use of high-dose ILTAC for acute lesions of HS.

**Combination of surgery and photodynamic therapy for the treatment of cystic acne of the scalp.** Bu W, Zhang M, Gong X, et al. Photodiagnosis Photodyn Ther. 2020 Aug 12;101944. doi: 10.1016/j.pdpdt.2020.101944. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32800966/>

Cystic acne of the scalp is relatively resistant to conventional treatment because of its thick wall and deep cavity. This study was conducted as a comparative analysis of clinical outcomes of single surgery and those of surgery combined with photodynamic therapy for cystic acne of the scalp. Ten patients were treated only with surgical incisions and drainage of pus and necrotic tissues, and another ten patients were treated with photodynamic therapy immediately after surgery, followed by two weekly cycles thereafter. The combination treatment group reported better outcomes than the single surgery group in terms of duration of wound healing, the number of dressing changes, pain score at the time of dressing change, and recurrence rate. Our study demonstrates that the combination of surgery and photodynamic therapy may have pronounced effects on the treatment for cystic acne of the scalp.

**Enhanced pulsed dye laser for facial rejuvenation.** Victor Ross E, Chodkiewicz H, Javvaji S, et al. Lasers Surg Med. 2020 Aug 10. doi: 10.1002/lsm.23309. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32779273/>

Background and objectives: To evaluate the efficacy of an enhanced pulsed dye laser (PDL) for treatment of facial-dyschromia. Study design/materials and methods: Thirteen patients were enrolled in the study. Nine patients were female, four were male, with a mean age of 61 years. All patients presented with either facial telangiectasia, rosacea, pigment, or a combination thereof. At the initial evaluation, test spots were performed to determine the subject's response to selected treatment parameters. In the study, the enhanced 595 nm PDL deployed a spot size range of 5-12 mm with fluences ranging from 8 to 18 J/cm<sup>2</sup>. Pulse duration was 10 milliseconds. Enhancements in this device included the option for contact or cryogen spray cooling, increased maximum pulse energy, increased repetition rate, option for addition of radiofrequency (RF), an option for a 15 mm spot size, and longer dye life. The smaller spots were used only for focal low contrast pigmented lesions that persisted after overall facial treatment with the larger spot. Smaller fluences were applied for general rejuvenation with the 12 mm spot (mean ~9 J/cm<sup>2</sup>). Sapphire contact cooling was applied at 10°C. A smaller area of the skin was reserved (typically pre-auricular area) for addition of RF energy just before the pulse (40-70 J/cm<sup>3</sup>) over 100 milliseconds with a 20 milliseconds delay between the end of the RF pulse and beginning of the laser pulse. The minimum fluence that achieved vessel closure/vessel bluing and/or slight immediate pigment darkening was applied based on test spots performed just before treatment to the entire face. Determinations of improvement were made by evaluation of photographs with standard settings using polarized and nonpolarized images. Up to three treatments were performed approximately 1 month apart with follow-up visits 1 and 3 months after the final treatment. Results: Evaluation by a panel of blind observers determined a mean clearance of at least 50% in all lesions, while 77% of lesions had 50-75% clearance, and 23% of lesions had 76-100% clearance. Pain was approximately 4/10. Subjective lesion improvement and satisfaction rates were 3 out of 4 and 3.6 out of 4, respectively. Conclusion: An enhanced PDL is effective in one pass treatments for facial rejuvenation with considerably less operative time than previous commercially available systems. A second pass applied to focal challenging lesions results in even more improvement, in a single treatment session.

**Ablative fractional carbon dioxide laser and autologous platelet-rich plasma in the treatment of atrophic acne scars: A comparative clinico-immuno-histopathological study.** El-Hawary EE, Nassar S, Hodeib AA, et al. Lasers Surg Med. 2020 Aug 8. doi: 10.1002/lsm.23306. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32770685/>

Background and objectives: To compare the efficacy of autologous platelet-rich plasma (PRP), ablative fractional carbon dioxide (FCO<sub>2</sub>) laser, and their combination in the treatment of atrophic acne scars, both clinically and immuno-histopathologically. Study design/materials and methods: Sixty patients were randomly divided into three equal groups. Group 1 received intradermal PRP injection sessions. Group 2 received FCO<sub>2</sub> laser sessions. Group

3 received FCO2 laser followed by intradermal PRP injection sessions. Each group received three sessions at monthly intervals. The final assessment took place 3 months after the last session. Skin biopsies were obtained before and 1 month after treatment sessions with pathological evaluation. Results: Combined PRP and FCO2 laser-treated patients had a better clinical response, fewer side effects, and shorter downtime than FCO2 laser alone. PRP-treated patients had some improvement but significantly lower than the other two groups. Conclusion: The current study concluded that a combination of PRP and FCO2 laser is an effective and safe modality in the treatment of atrophic acne scars with better results than PRP or FCO2 laser alone.

**Ultrasound-assisted intralesional corticosteroid infiltrations for patients with hidradenitis suppurativa.** Luis SR, Salvador AS, Alejandro ML. *Sci Rep.* 2020 Aug 7;10(1):13363. doi: 10.1038/s41598-020-70176-x. <https://pubmed.ncbi.nlm.nih.gov/32770058/>

Corticosteroid infiltrations of lesions in hidradenitis suppurativa (HS) appear to be beneficial to acute flares. The aim of this study is to evaluate the effectiveness and safety of ultrasound-assisted intralesional corticosteroid infiltrations to HS lesions. Prospective cohort study between February 2017 and February 2019 on patients with mild to severe HS and one or more inflammatory lesions. The study intervention was ultrasound-assisted intralesional infiltration of triamcinolone acetonide 40 mg/ml. The main outcome was the complete response rate of infiltrated lesions versus non-infiltrated lesions. Two hundred and forty-seven infiltrated inflammatory lesions and 172 non-infiltrated lesions were included. At week 12, 81.1% (30/37) of nodules, 72.0% (108/150) of abscesses and 53.33% (32/60) of draining fistulas presented complete response versus 69.1% (47/68), 54.3% (38/70) and 35.3% (12/34) respectively for the non-infiltrated lesions. The Hurley stage negatively correlated with complete response for abscesses and draining fistulas at - 0.17 (SD 0.06)  $p < 0.01$  and - 0.30 (SD 0.13)  $p < 0.02$  respectively. Ultrasound-assisted corticosteroid infiltration is a useful technique for the treatment of inflammatory HS lesions, with high and sustained response rates, especially for abscesses and small to medium-size simple draining fistulas. The likelihood of response correlates negatively with the Hurley stage.

[Download Reference Document](#)

**Irrelevance of Panton-Valentine leukocidin in hidradenitis suppurativa: Results from a pilot, observational study.** Corazza M, Borghi A, Bettoli V, et al. *Eur J Clin Microbiol Infect Dis.* 2020 Aug 7. doi: 10.1007/s10096-020-04002-7. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32767177/>

Panton-Valentine leukocidin (PVL) appears to be a virulence factor which, among others, can exacerbate the pathogenicity of *Staphylococcus aureus* infections, especially inducing severe necrotic, deep-seated skin infections, abscesses, and recurrences. These peculiarities have some overlaps with hidradenitis suppurativa (HS). Our main aim was to assess if *S. aureus* producing PVL could have some role in influencing clinical features and/or course of HS, specifically in the suppuration and recurrence of lesions. This pilot, mono-centric, observational study included all adult subjects affected with HS consecutively referring to our HS clinic over a 3-month period. Clinically evident suppuration and at least 2 weeks wash out from any antibiotic were the main inclusion criteria. Purulent material from HS skin lesions was collected with swabs in order to isolate micro-organisms, with specific regard to *S. aureus*. Detection of PVL was performed by real-time quantitative PCR (RT-qPCR). We also analyzed purulent material from suppurative skin lesions other than HS, as a control. Thirty HS patients were included; 29 purulent lesions (96.7%) harbored at least one bacterial species. Five (16.7%) swab samples were positive for *S. aureus*, none of which was positive for PVL genes. Among the 30 purulent disorders included as controls, 8 (26.3%) were positive for *S. aureus*; of these, 4 strains (50%) expressed LPV. The study results seem to exclude the pathogenetic involvement of *S. aureus* producing PVL in HS; as a result, PVL does not seem to represent a potential target in the future development of HS treatments.

**Botulinum toxin type b for hidradenitis suppurativa: A randomized, double-blind, placebo-controlled pilot study.** Grimstad Ø, Kvammen BØ, Swartling C. *Am J Clin Dermatol.* 2020 Aug 6. doi: 10.1007/s40257-020-00537-9. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32761500/>

Background: Botulinum toxin (BTX) is a potent neurotoxin with a long history of therapeutic application in neurological and dermatological conditions, with a strong efficacy and safety profile. Objective: Our aim was to assess whether intradermal injection with BTX-B is an effective treatment for hidradenitis suppurativa (HS). Methods: Twenty patients with HS stage I-III disease, according to Hurley's classification, were consecutively included for treatment with either a placebo or BTX-B. At the next intervention after 3 months, all participants received the active substance and another follow-up at 6 months. The primary outcome was quality of life, measured using the Dermatology Life Quality Index (DLQI), while secondary outcomes were the visual analogue scale (VAS) for pain in the worst boil and HS-related impairment of general health (VAS), as well as changes in physician-reported disease activity assessed as the number of total lesions, and reported adverse effects of treatment. Results: The DLQI improved from a median of 17 at baseline to 8 at 3 months in the BTX-B group, compared with a reduction from 13.5 to 11 in the placebo group ( $p < 0.05$ ). Improvement of the patients' own ratings of symptoms and a reduction in total lesions supplemented the primary outcome. Fifty-five percent of the study population reported some degree of hyperhidrosis. Conclusion: BTX-B improves the quality of life in patients with HS. Furthermore, comorbidity between HS and hyperhidrosis is suggested. Trial registration: ClinicalTrials.gov identifier: NCT03103074.

[Download Reference Document](#)

**In which rosacea patients should Demodex in the eyelashes be investigated?** Ogrum A, Alim S. *Niger J Clin Pract.* 2020 Aug;23(8):1039-1043. doi: 10.4103/njcp.njcp\_590\_18. <https://pubmed.ncbi.nlm.nih.gov/32788478/>

Aim: The aim of this study was to investigate the relationship between the presence of Demodex on the face and within the eyelash follicles in patients with rosacea. Subjects and methods: This prospective cross-sectional study included 80 participants, 40 patients with rosacea and 40 individuals with no rosacea as controls. The presence of Demodex on the face was assessed by standard superficial skin biopsy. Sixteen eyelashes were epilated from each patient and control. Results: The rate of Demodex infestation and severe infestation on the face in patients with rosacea was significantly higher than the control group. Demodex count within the eyelash follicle was significantly higher in patients with erythematotelangiectatic type rosacea than the control group. There was no increase in blepharitis in rosacea patients but when blepharitis was present, the rate of the presence of Demodex was higher in this group. There was a statistically significant relationship between the presence of Demodex within the eyelashes and itchy eyes in people without blepharitis. Conclusion: When at least one Demodex is found on the face in rosacea patients, the eyelashes should be examined for effective treatment of the mite. Itchy eyes may be an important sign of the presence of Demodex in people without blepharitis.

**Examining quality of life after treatment with azelaic and pyruvic acid peels in women with acne vulgaris.** Chilicka K, Rogowska AM, Szyguła R, Taradaj J. *Clin Cosmet Investig Dermatol.* 2020 Jul 27;13:469-477. doi: 10.2147/CCID.S262691. eCollection 2020. <https://pubmed.ncbi.nlm.nih.gov/32801822/>

Purpose: This randomized parallel study aims to investigate the azelaic acid (AA), and pyruvic acid (PA) peels treatment effect on health-related quality of life (QOL) in young adult women with acne vulgaris. Patients and methods: The participants were 120 female undergraduate students, with mild to moderate facial acne and an average age of 22 years old ( $M = 22.2$ ,  $SD = 16.1$ ). Eligibility criteria were as follows: female gender, 18-25 years of age, no dermatological treatment within the last 12 months and mild to moderate papulopustular acne. Patients were randomly divided into two groups, the first group was treated with AA, and the second group was treated with PA. Both groups received treatment every 2 weeks, for a total of 12 weeks. The Hellgren-Vincent scale was used to assess acne

severity, and the Dermatology Life Quality Index (DLQI) and Skindex-29 were used to evaluate the quality of life of each patient. These scores were calculated before treatment, and after finishing the final treatment. Results: All scoring systems used (Hellgren-Vincent scale, DLQI, and Skindex-29) demonstrated improvement in both groups. QOL scores were slightly better in the group using pyruvic acid compared with azelaic acid. Conclusion: Both AA and PA have a significant impact on the objective assessment of acne symptoms, as well as the subjectively measured quality of life of young adult women with acne. There is a slightly greater improvement in QOL scores with PA compared with AA peeling treatment.

## Clinical Reviews

### **The effects of green tea on acne vulgaris: A systematic review and meta-analysis of randomized clinical trials.**

Kim S, Park TH, Kim WI, et al. *Phytother Res*. 2020 Aug 19. doi: 10.1002/ptr.6809. Online ahead of print.

<https://pubmed.ncbi.nlm.nih.gov/32812270/>

Green tea extract (GTE) has been studied for the treatment of acne based on its anti-inflammatory/antioxidant properties. This systematic review and meta-analysis aimed to examine the effects of GTE on acne. Electronic databases, including PubMed, Embase, and the Cochrane Library were systematically searched up to August 2019. The effect size of acne lesion counts is presented as mean differences and 95% confidence intervals (CIs). Five randomized-controlled studies were included in the meta-analysis (N; experimental = 125, control = 122). GTE significantly reduced the number of inflammatory lesions (-9.38; 95% CI: -14.13 to -4.63). In subgroup analysis, topical GTE application significantly reduced the inflammatory lesion counts (-11.39; 95% CI: -15.91 to -6.86) whereas oral GTE intake showed minimal effect (-1.40; 95% CI: -2.50 to -0.30). Although GTE did not significantly reduce the number of non-inflammatory lesions (-21.65; 95% CI: -47.52 to 4.22), when stratified by the route of admission, non-inflammatory acne lesions were significantly reduced by topical GTE application (-32.44; 95% CI: -39.27 to -25.62) but not with oral GTE administration (0.20; 95% CI: 0.00 to 0.40). This systematic review and meta-analysis suggest that topical GTE application is beneficial for the treatment of acne without causing significant adverse events while oral GTE intake has limited effects. Further high-quality clinical trials are warranted.

### **Biochemical and physical actions of hyaluronic acid delivered by intradermal jet-injection route.**

Vinshtok Y, Cassuto D. *J Cosmet Dermatol*. 2020 Aug 16. doi: 10.1111/jocd.13674. Online ahead of print.

<https://pubmed.ncbi.nlm.nih.gov/32799371/>

Administration of exogenous hyaluronic acid (HA) by liquid jet injection is considered as a beneficial therapy for dermatology conditions. This paper reviews variety of the factors which would optimize the clinical output of hyaluronic acid in this treatment modality. A pneumatically-accelerated jet penetrates the epidermis and spherically spreads micro-droplets of HA in the dermis without significant damage to the tissue and blood vessels. Kinetic energy of the jet activates two parallel mechanisms of action - mechanical and biological - which act synergistically to initiate and augment the regenerative effect. Jet-induced micro-trauma stimulates collagen synthesis and tissue repair without inflammation. Aside from the biophysical stimulation of dermal fibroblast, the biomolecular properties of exogenous HA provide excellent clinical results for skin atrophy, remodeling of dermal scarring, and reverse formation of fibrotic tissue. The effect is mediated by HA-specific cell receptors and depends on molecular weight and the rheological properties of HA polymer. Skin mechanical properties play a key role in predicting HA dispersion patterns. Tolerability and safety of the treatment approach are determined by the jet's physical impact on the tissue and/or by the safety profile of the injected material. Although pneumatic jet delivery of a hyaluronic acid has a limited use in clinical practice, this treatment approach has a strong potential for extended implementation in aesthetic dermatology. The synergistic mechanism has significant advantages of predictable and rapid clinical outcomes with a low discomfort. Additional

well-designed investigations are required for establishing a scientific foundation and guidelines for this treatment modality.

**A strategic review on the involvement of receptors, transcription factors and hormones in acne pathogenesis.**

Bharti S, Vadlamudi HC. *J Recept Signal Transduct Res.* 2020 Aug 13;1-12. doi: 10.1080/10799893.2020.1805626. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32787477/>

Acne vulgaris is a very common pilosebaceous inflammatory disease occurring primarily on the face and also rare on the upper arms, trunk, and back, which is caused by *Propionibacterium*, *Staphylococcus*, *Corynebacterium*, and other species. Pathophysiology of acne comprises of irregular keratinocyte proliferation, differentiation, increased sebum output, bacterial antigens and cytokines induced inflammatory response. Treatment of acne requires proper knowledge on the pathophysiology then only the clinician can come out with a proper therapeutic dosage regimen. Understanding the pathophysiology not only includes the mechanism but also involvement of receptors. Thus, this review is framed in such a way that the authors have focused on the disease acne vulgaris, pathophysiology, transcription factors viz. the Forkhead Box O1 (FoxO1) Transcription Factor, hormones like androgens and receptors such as Histamine receptors, Retinoic receptor, Fibroblast growth factor receptors, Toll like receptor, Androgen receptor, Liver X-receptor, Melanocortin receptor, Peroxisome proliferator-activated receptor and epidermal growth factor receptors involvement in the progression of acne vulgaris.

**Metformin versus the combined oral contraceptive pill for hirsutism, acne, and menstrual pattern in polycystic ovary syndrome.**

Fraison E, Kostova E, Moran LJ, et al. *Cochrane Database Syst Rev.* 2020 Aug 13;8:CD005552. doi: 10.1002/14651858.CD005552.pub3. <https://pubmed.ncbi.nlm.nih.gov/32794179/>

Background: Metformin has been proposed as possibly a safer and more effective long-term treatment than the oral contraceptive pill (OCP) in women with polycystic ovary syndrome (PCOS). It is important to directly compare the efficacy and safety of metformin versus OCP in the long-term treatment of women with PCOS. This is an update of a Cochrane Review comparing insulin sensitizing agents with the OCP and only includes studies on metformin. Objectives: To assess the effectiveness and safety of metformin versus the OCP (alone or in combination) in improving clinical, hormonal, and metabolic features of PCOS. Search methods: In August 2019 we searched the Cochrane Gynaecology and Fertility Group Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, Embase and CINAHL, the trial registers, handsearched references of the identified articles, and contacted experts in the field to identify additional studies. Selection criteria: We included randomized controlled trials (RCTs) of the use of metformin versus the OCP (alone or in combination) for women with PCOS. Data collection and analysis: We used standard methods recommended by Cochrane. The primary review outcomes were the clinical parameters of hirsutism and adverse events, both severe (requiring stopping of medication), and minor. In the presence of substantial heterogeneity ( $I^2$  statistic > 50), which could be explained by pre-specified subgroup analyses on the basis of BMI, we reported the subgroups separately. Main results: This is a substantive update. We identified 38 additional studies. We included 44 RCTs (2253 women), which comprised 39 RCTs on adult women (2047 women) and five RCTs on adolescent women (206 women). Evidence quality ranged from very low to low. The main limitations were risk of bias, imprecision and inconsistency. Metformin versus the OCP In adult women, we are uncertain of the effect of metformin compared to the OCP on hirsutism in subgroup body mass index (BMI) < 25 kg/m<sup>2</sup> (mean difference (MD) 0.38, 95% confidence interval (CI) -0.44 to 1.19, 3 RCTs, n = 134,  $I^2$  = 50%, very low-quality evidence) and subgroup BMI > 30 kg/m<sup>2</sup> (MD -0.38, 95% CI -1.93 to 1.17; 2 RCTs, n = 85,  $I^2$  = 34%, low-quality evidence). Metformin may be less effective in improving hirsutism compared to the OCP in the subgroup BMI 25 kg/m<sup>2</sup> to 30 kg/m<sup>2</sup> (MD 1.92, 95% CI 1.21 to 2.64, 5 RCTs, n = 254,  $I^2$  = 0%, low-quality evidence). Metformin may increase severe gastro-intestinal adverse events rate compared to the OCP (Peto odds ratio (OR) 6.42, 95% CI 2.98 to 13.84,

11 RCTs,  $n = 602$ ,  $I^2 = 0\%$ , low-quality evidence). Metformin may decrease the incidence of severe other adverse events compared to the OCP (Peto OR 0.20, 95% CI 0.09 to 0.44, 8 RCTs,  $n = 363$ ,  $I^2 = 0\%$ , low-quality evidence). There were no trials reporting on minor adverse events. In adolescents, we are uncertain whether there is a difference between Metformin and the OCP, on hirsutism and adverse events. Metformin versus metformin combined with the OCP In adult women, metformin may be less effective in improving hirsutism compared to Metformin combined with the OCP (MD 1.36, 95% CI 0.62 to 2.11, 3 RCTs,  $n = 135$ ,  $I^2 = 9\%$ , low-quality evidence). We are uncertain if there was a difference between metformin and metformin combined with the OCP for severe gastro-intestinal adverse events (OR 0.74, 95% CI 0.21 to 2.53, 3 RCTs,  $n = 171$ ,  $I^2 = 0\%$ , low-quality evidence), or for severe other adverse events (OR 0.56, 95% CI 0.11 to 2.82, 2 RCTs,  $n = 109$ ,  $I^2 = 44\%$ , low-quality evidence). There were no trials reporting on minor adverse events. In adolescents, there were no trials for this comparison. The OCP versus metformin combined with the OCP In adult women, the OCP may be less effective in improving hirsutism compared to metformin combined with the OCP (MD 0.54, 95% CI 0.20 to 0.89, 6 RCTs,  $n = 389$ ,  $I^2 = 1\%$ , low-quality evidence). The OCP may decrease the incidence of severe gastro-intestinal adverse events compared to metformin combined with the OCP (OR 0.20, 95% CI 0.06 to 0.72, 5 RCTs,  $n = 228$ ,  $I^2 = 0\%$ , low-quality evidence). We are uncertain if there is a difference between the OCP and metformin combined with the OCP for severe other adverse events (OR 1.61, 95% CI 0.49 to 5.37, 4 RCTs,  $n = 159$ ,  $I^2 = 12\%$ , low-quality evidence). The OCP may decrease the incidence of minor (gastro-intestinal) adverse events compared to metformin combined with the OCP (OR 0.06, 95% CI 0.01 to 0.44, 2 RCTs,  $n = 98$ ,  $I^2 = 0\%$ , low-quality evidence). In adolescents, we are uncertain whether there is a difference between the OCP, compared to metformin combined with the OCP, on hirsutism or adverse events. Authors' conclusions: In adult women with PCOS, metformin may be less effective in improving hirsutism compared to the OCP in the subgroup BMI 25 kg/m<sup>2</sup> to 30 kg/m<sup>2</sup> but we are uncertain if there was a difference between metformin and the OCP in subgroups BMI < 25 kg/m<sup>2</sup> and BMI > 30kg/m<sup>2</sup>. Compared to the OCP, metformin may increase the incidence of severe gastro-intestinal adverse events and decrease the incidence of severe other adverse events with no trials reporting on minor adverse events. Either metformin alone or the OCP alone may be less effective in improving hirsutism compared to metformin combined with the OCP. We are uncertain whether there is a difference between the OCP alone and metformin alone compared to metformin combined with the OCP for severe or minor adverse events except for the OCP versus metformin combined with the OCP where the OCP may decrease the incidence of severe and minor gastro-intestinal adverse events. In adolescent women with PCOS, we are uncertain whether there is a difference between any of the comparisons for hirsutism and adverse events due to either no evidence or very low-quality evidence. Further large well-designed RCTs that stratify for BMI are needed to evaluate metformin versus the OCP and combinations in women with PCOS, in particular adolescent women.

**Psychodermatology of acne: Dermatologist's guide to inner side of acne and management approach.** Aslan Kayiran M, Karadag AS, Jafferany M. *Dermatol Ther.* 2020 Aug 8. doi: 10.1111/dth.14150. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32770727/>

Acne vulgaris (AV) is a skin disease that is commonly seen and causes scar formation especially when left untreated. It can cause serious psychological comorbidities due to the intense involvement of appeared areas such as face and also being common in adolescence in which the body perception is not yet well established. Although psychiatric comorbidities frequently accompany AV patients in dermatology, they almost never directed to dermatology-psychiatry liaison clinics. Depression, anxiety, stress, decreased self-esteem, suicidal thoughts and even suicide attempts are too frequent to ignore in these patients, and many studies have been conducted on the positive or controversial effects of acne treatments. For this reason, serious responsibilities fall to dermatologists. They should not treat AV lesions only, but also to determine the AV patients' psychological conditions and to direct them to get help when necessary.

[Download Reference Document](#)

**Reviewing the Global Burden of acne: how could we improve care to reduce the burden?** Layton AM, Thiboutot D, Tan J. *Br J Dermatol.* 2020 Aug 8. doi: 10.1111/bjd.19477. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32770673/>

Acne (syn: acne vulgaris) remains the commonest inflammatory dermatosis treated worldwide as estimated by global skin disease prevalence studies. Latest reports suggest the prevalence may be increasing in adolescents and adults, particularly adult females. The concept of burden of skin disease is multidimensional and can be difficult to quantify in light of different healthcare systems across the globe. In acne, the resulting burden may vary according to the patient demographic, access to treatments and duration of the disease. The visible nature of acne, symptoms and sequelae all contribute physically and psychosocially to the overall burden of disease as do the costs required for management. Acne typically presents in adolescence at a time of significant transition. Profound effects on functional status with strong impact on interpersonal relationships, social functioning as well as on mental health have been demonstrated. The high prevalence of acne also presents an economic burden for society. The widespread and prolonged use of antibiotics introduces a potential added burden through resulting antimicrobial resistance. A James Lind Alliance Acne Priority Setting Partnership has identified numerous areas to inform future research which would help to improve acne management and reduce the burden. Lack of standardized assessments is a major issue in acne trials and challenges the ability to compare treatments and perform meta-analyses. This paper reviews the current literature on burden of acne, identifies areas of treatment uncertainties, and summarizes the work of Acne Core Outcome Network (ACORN) as a means of supporting a reduction in the burden of disease.

[Download Reference Document](#)

**Effects of diet on acne and its response to treatment.** Baldwin H, Tan J. *Am J Clin Dermatol.* 2020 Aug 3. doi: 10.1007/s40257-020-00542-y. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32748305/>

Our understanding of the pathogenesis of acne vulgaris is still evolving. It is known that multiple factors impact acne pathophysiology, including genetic, hormonal, inflammatory, and environmental influences. Because of its implications in many of these factors, diet has been a part of the acne discussion for decades. Several studies have evaluated the significance of the glycemic index of various foods and glycemic load in patients with acne, demonstrating individuals with acne who consume diets with a low glycemic load have reduced acne lesions compared with individuals on high glycemic load diets. Dairy has also been a focus of study regarding dietary influences on acne; whey proteins responsible for the insulinotropic effects of milk may contribute more to acne development than the actual fat or dairy content. Other studies have examined the effects of omega-3 fatty acid and  $\gamma$ -linoleic acid consumption in individuals with acne, showing individuals with acne benefit from diets consisting of fish and healthy oils, thereby increasing omega-3 and omega-6 fatty acid intake. Recent research into the effects of probiotic administration in individuals with acne present promising results; further study of the effects of probiotics on acne is needed to support the findings of these early studies. In this review, we discuss the current evidence regarding the diets of US patients with acne and how they may impact acne and acne treatment.

[Download Reference Document](#)

**The use of isotretinoin for acne - an update on optimal dosing, surveillance, and adverse effects.** Bagatin E, Costa CS. *Expert Rev Clin Pharmacol.* 2020 Aug 1;1-13. doi: 10.1080/17512433.2020.1796637. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32744074/>

Introduction: Acne is a chronic, inflammatory, and immune mediated disease of pilosebaceous unit, highly prevalent in adolescents. It involves face, trunk, and back; may leave scars and affect quality of life. Early, effective, and safe treatment is the key for disease resolution. Oral isotretinoin is the unique treatment for cure or prolonged remission for moderate and severe acne, preventing psychosocial impact and scars. It inhibits sebaceous glands activity and

has anti-inflammatory and immunoregulatory properties. Areas covered: We performed a comprehensive literature search on PubMed database, up to March 2020, regarding oral isotretinoin for acne treatment. We synthesized data about acne pathogenesis and mechanism of action, efficacy, and safety of isotretinoin. Expert opinion: This drug is effective, despite common, controllable, and reversible mucocutaneous side effects. Serious adverse events are rare and represent individual reactions. Teratogenicity is the most severe, requiring rigorous control. We believe that no other therapeutic option, even topicals combined to oral antibiotics accomplish same results. Recurrence after treatments other than isotretinoin is the rule, prolonging risk of scars, compromising skin appearance, and causing emotional distress in teenagers. If there is no absolute contraindication, isotretinoin should be the first line treatment for moderate to severe inflammatory acne.

**Recent advances in understanding and managing acne.** Kurokawa I, Nakase K. *F1000Res.* 2020 Jul 29;9:F1000 Faculty Rev-792. doi: 10.12688/f1000research.25588.1. eCollection 2020. <https://pubmed.ncbi.nlm.nih.gov/32765835/>

Multidisciplinary investigations into the pathogenesis of acne have significantly progressed over the past three years. Studies of the etiology of acne from the perspectives, for example, of sebaceous gland biology, sebum, genetics, keratinization, differentiation, hair cycles, immunology, bacteriology, and wound healing have elucidated its pathogenesis. This has led to the development of new therapies and paved the way for advanced studies that will enable the further evolution of acne treatment.

[Download Reference Document](#)

**Acute inflammatory demodex-induced pustulosis in an immunocompetent patient related to topical steroid use.** Guzman AK, Gittler JK, Amin B, et al. *Pediatr Dermatol.* 2020 Jul 29. doi: 10.1111/pde.14315. Online ahead of print. <https://pubmed.ncbi.nlm.nih.gov/32729151/>

Demodex spp. mites are a common colonizer of sebaceous adult skin. Though usually clinically insignificant, demodicosis may be associated with a wide spectrum of skin diseases in immunocompetent hosts, such as erythematotelangiectatic and papulopustular rosacea, Demodex folliculorum, and blepharitis. We present a case of a healthy 9-year-old boy with an exuberant, inflammatory, Demodex-associated pustular eruption of the face, induced by the use of a high-potency topical steroid and successfully treated with oral ivermectin.

**Isotretinoin and the kidney: Opportunities and threats.** Forouzani-Haghighi B, Karimzadeh I. *Clin Cosmet Investig Dermatol.* 2020 Jul 28;13:485-494. doi: 10.2147/CCID.S259048. eCollection 2020. <https://pubmed.ncbi.nlm.nih.gov/32801824/>

Retinoids are one of the most effective drugs in inducing complete or prolonged remission of severe acne vulgaris, but the adverse reactions associated with the use of them are raising a concern about the potential effect of these drugs on internal organs function such as the kidney. The aim of this review is to comprehensively gather data about isotretinoin, both potential adverse and beneficial effects on the kidney based on the current experimental and clinical findings. Very few studies, including five case reports, described that systemic oral isotretinoin within usual doses (40 mg/day or 0.5 mg/kg/day) within 1 to 4 months of treatment might be associated with different types of renal dysfunctions. These include acute interstitial nephritis, nephrotic syndrome, and hematuria with dysuria. The adverse reactions of systemic isotretinoin on the kidney and urinary system are unlikely and rare. In contrast, six experimental studies demonstrated the beneficial effects of either oral or parenteral low- (2 or 5 mg/kg/day) or high- (10, 20, 25, 40 mg/kg/day) dose isotretinoin on the kidney in the rat models of glomerulonephritis, obstructive nephropathy or allograft nephropathy. The nephroprotective functions of isotretinoin in these studies were attributed to its anti-proliferative, anti-fibrotic, and anti-inflammatory actions. However, clinical studies are warranted to elucidate the possible beneficial effects of isotretinoin in preventing or attenuating kidney injury in different settings.