Solutions for All Skin Problems

Dr. John Bergman

Common Skin Problems

- Acne
- Eczema
- Rosacea
- Hives (urticaria)
- Shingles (Herpes Zoster)
- Psoriasis
- Cold Sores (Fever Blisters)
- Plant Rashes
- Skin Tags

- Athlete's Foot
- Moles
- Liver Spots
- Pityriasis Rosea
- Melasma
- Warts
- Seborrheic Dermatitis
- Skin Cancer

Autoimmune Disorders of the Skin

- Scleroderma
- Psoriasis
- Dermatomyositis
- Epidermolysis Bullosa
- Bullous Pemphigoid

Life-Threatening Skin Problems

- Pemphigus Vulgaris
- Toxic Epidermal Necrolysis (Stevens-Johnson Syndrome)
- Drug Rash with Eosinophilia an
  Symptoms (DRESS)
- Toxic Shock Syndrome
- Meningococcemia
- Rocky Mountain spotted fever
- Necrotizing fasciitis

There are over 3,000 different Skin Diseases!

“There are more than 3000 defined varieties of skin disease described in the medical literature and symptomatology may range from physical discomfort to psychological and emotional toil to death.”

Dermatologic Clinics

And each disease is Complex

"In addition, many general terms, such as eczema and dermatitis, are ambiguous in their diagnostic intent because they **may encompass a diverse array of pathologies and may be differently interpreted by various specialists.**"

Dermatologic Clinics

Skin Conditions are a Major Problem

"Skin conditions are frequently cited among the most common health problems in the United States and Canada, and US **collective prevalence estimates surpass those of obesity, hypertension, and cancer**."

"Morbidity and mortality from skin conditions are both expected to increase, and prevalence and health care spending related to **skin disease are considered among the fastest growing of any medical condition**."

Dermatologic Clinics

What is being blamed for all these skin problems?

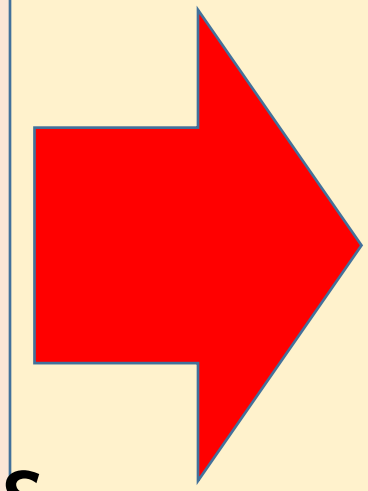
- Bacteria
- Viruses
- Fungi
- Allergies
- Irritants
- Autoimmune Diseases
- Genetics

"Allergies, irritants, your genetic makeup, and certain diseases and immune system problems can cause dermatitis, hives, and other skin conditions."

National Institute of Health

How are Skin Problems Treated?

- Bacteria
- Viruses
- Fungi
- Allergies
- Irritants
- Autoimmune Diseases
- Genetics



- Antibiotic
- Antiviral
- Antifungal
- Antihistamines
- Steroids
- Immunosuppressants
- ?

Side Effects of a Common Antibiotic (Penicillin)

- nausea, vomiting, stomach pain;
- vaginal itching or discharge;
- headache;
- swollen, black, or "hairy" tongue; or
- thrush (white patches or inside your mouth or throat).
- diarrhea that is watery or bloody;
- fever, chills, body aches, flu symptoms;
- easy bruising or bleeding, unusual weakness;
- urinating less than usual or not at all;
- severe skin rash, itching, or peeling;
- agitation, confusion, unusual thoughts or behavior; or
- seizure (black-out or convulsions).

Side Effects of a Common Antiviral (Acyclovir)

- Pain, swelling, or redness
- Abdominal or stomach pain
- decreased frequency of urination or amount of urine
- increased thirst
- loss of appetite
- nausea or vomiting
- unusual tiredness or weakness
- Black, tarry stools
- blood in urine or stools
- chills, fever, or sore throat
- confusion
- convulsions (seizures)
- hallucinations (seeing, hearing, or feeling things that are not there)
- hives
- pinpoint red spots on skin
- trembling
- unusual bleeding or bruising
- Bleeding or oozing from puncture sites or mucous membranes (bowel, mouth, nose, or urinary bladder), continuing
- blistering, peeling, or loosening of skin
- bluish coloring, especially of the hands and feet

Side Effects of a Common Antiviral (Acyclovir)

- blurred vision
- changes in facial skin color
- changes in vision
- clumsiness
- coughing
- decreased consciousness
- difficulty in breathing or swallowing
- dizziness or feeling faint, severe
- fast heartbeat
- irritability
- itching or skin rash
- large hive-like swelling on face, eyelids, lips, tongue, throat, hands, legs, feet, sex organs
- mood or mental changes
- muscle cramps, pain, or weakness
- pale skin
- red or irritated eyes
- sense of agitation or uneasiness
- shakiness and unsteady walk
- sores, ulcers, or white spots in mouth or on lips
- swelling of eyelids, face, feet, hands, lower legs or lips
- swollen, painful, or tender lymph nodes (glands) in neck, armpit, or groin
- unsteadiness or other problems with muscle control or coordination
- yellow eyes or skin

Side Effects of a Common Antifungal (Ketoconazole)

- mild nausea, vomiting, or stomach pain;
- mild itching or skin rash;
- headache;
- dizziness;
- breast swelling; or
- impotence or loss of interest in sex.
- dizziness, fainting, fast or pounding heartbeat;
- easy bruising or bleeding, unusual weakness;
- numbness or tingly feeling;
- severe depression, confusion, or thoughts of hurting yourself; or
- nausea, stomach pain, low fever, loss of appetite, weakness, dark urine, clay-colored stools, jaundice (yellowing of the skin or eyes).

Side Effects of a Common Antihistamine (Dimetane)

- dizziness, drowsiness;
- dry mouth, nose, or throat;
- constipation;
- blurred vision; or
- feeling nervous or restless.
- fast or uneven heart rate;
- mood changes;
- tremor, seizure (convulsions);
- easy bruising or bleeding, unusual weakness;
- feeling short of breath; or
- urinating less than usual or not at all.

Side Effects of Topical Corticosteroids

- skin thinning (atrophy)
- stretch marks (striae)
- Easy bruising and tearing of the skin
- Enlarged blood vessels
- localized hair thickness and length,
- Steroid Rosacea (steroid acne): small bumps (papules) and pustules
- Periorificial Dermatitis: itchy or tender small red papules
- Pustular Psoriasis: flares of widespread sterile pustules on a background of red and tender skin

Side Effects of a Common Immunosuppressant (Imuran)

- mild upset stomach, nausea, diarrhea, loss of appetite;
- hair loss; or
- skin rash.
- fever, night sweats, weight loss, tiredness;
- pain in your upper stomach that may spread to your shoulder;
- easy bruising or bleeding, pale skin, feeling light-headed or short of breath, rapid heart rate
- nausea, upper stomach pain, itching, loss of appetite, dark urine, clay-colored stools, jaundice (yellowing of the skin or eyes).
- signs of infection (fever, chills, sore throat, body aches, weakness, muscle pain, flu symptoms);
- severe nausea, vomiting, or diarrhea;
- pain or burning with urination; or
- white patches or sores inside your mouth or on your lips.

Let’s figure out what causing the problem!

Fun Facts about your Skin

- Skin accounts for about **15% of your body weight.**
- The average adult has approximately **21 square feet of skin**, which **weighs 9 lbs** and contains more than 11 miles of blood vessels.
- Some of the nerves in your skin are connected to muscles instead of the brain, sending signals (through the spinal cord) to react more quickly to heat, pain, etc.

Forefront Dermatology

Fun Facts about your Skin

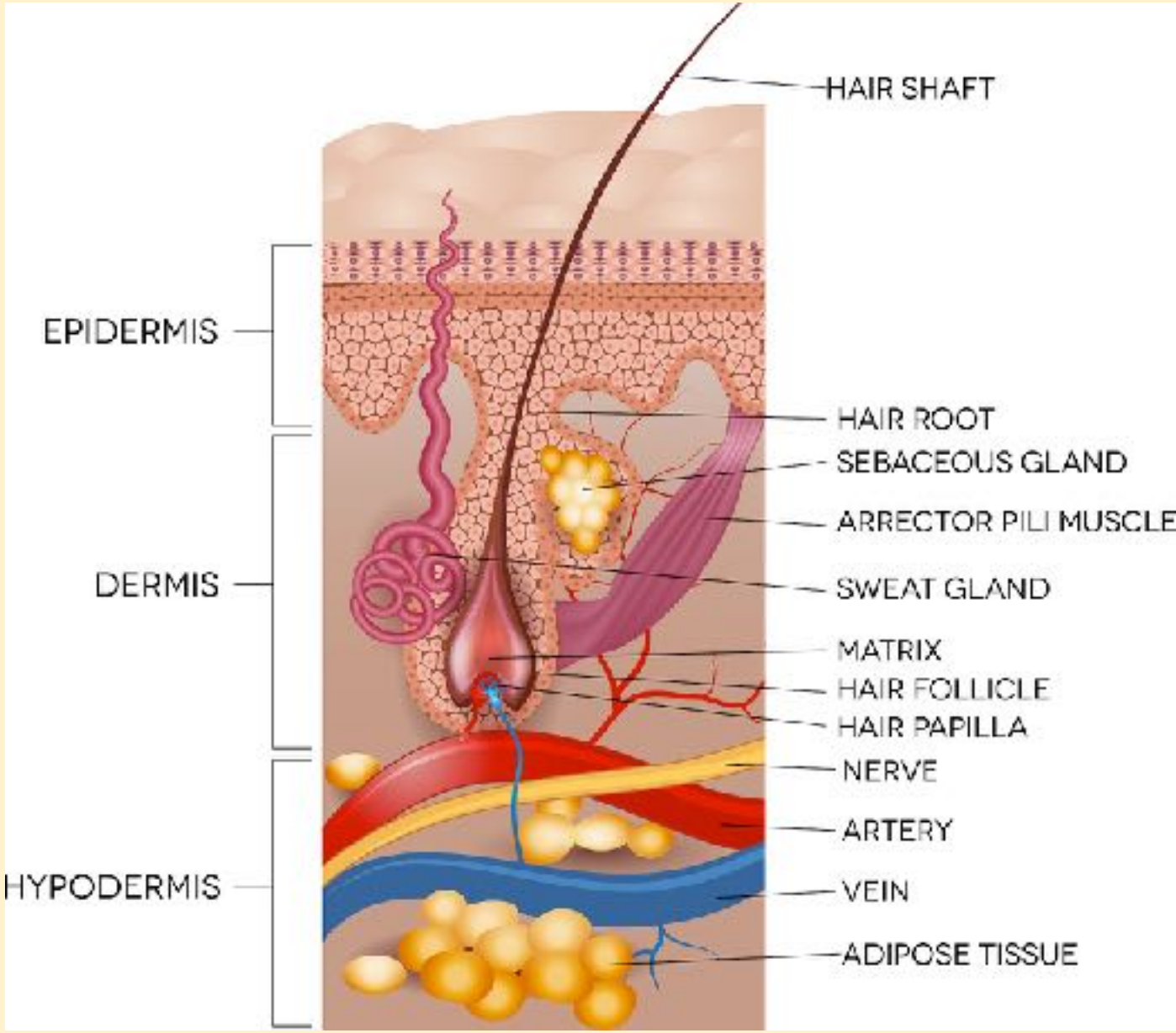
- The average person has about **300 million skin cells**. A single square inch of skin has about 19 million cells and up to 300 sweat glands.
- Your skin is home to more than **1,000 species of** bacteria.
- **The skin renews itself every 28 days.**
- Your skin constantly sheds dead cells, about 30,000 to 40,000 cells every minute! That's nearly 9 lbs. per year!

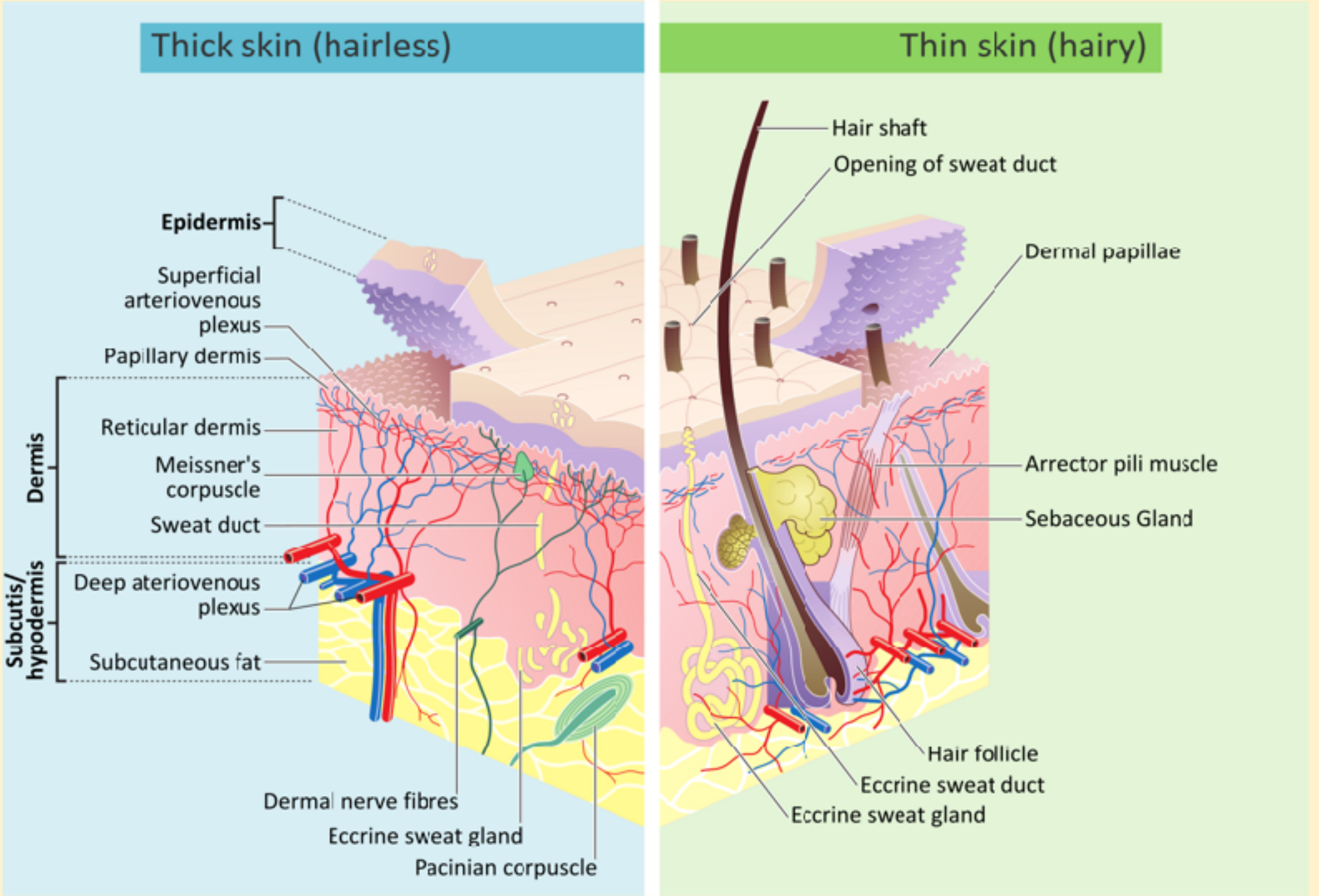
Forefront Dermatology

Anatomy and Physiology of the Skin

Functions of Skin

- Protection
- Sensation
- Heat regulation
- Control of evaporation
- Aesthetics and communication
- Storage (lipids and water) and Synthesis (vitamin D)
- Excretion (sweat contains urea)
- Absorption
- Water Resistance




Thick skin (hairless)
Thin skin (hairy)
Epidermis
Superficial arteriovenous plexus
Papillary dermis
Dermis
Reticular dermis
Meissner's corpuscle
Sweat duct
Subcutis/ hypodermis
Deep ateriovenous plexus
Subcutaneous fat
Dermal nerve fibres
Eccrine sweat gland
Pacinian corpuscle
Hair shaft
Opening of sweat duct
Dermal papillae
Arrector pili muscle
Sebaceous Gland
Hair follicle
Eccrine sweat duct
Eccrine sweat gland

Skin Flora

- About **1000 species of bacteria from 19 bacterial phyla** have been found on human skin
- On one square inch of human skin there are an estimated **50 million bacteria**
- Oily surfaces such as the face may contain over **500 million bacteria per square inch**
- The density of skin flora depends on the region of the skin
- The skin has **an ecosystem of yeast, bacteria and viruses**

The Balance of Skin Flora

- **All microorganisms keep one another in check**
- Disinfected skin surface gets recolonized from bacteria in the deeper areas of the hair follicle, gut, and urogenital openings
- **When the balance is disturbed there can be an overgrowth and infection**, especially fungal infections
- Sunlight, water, and air all play roles in keeping a balance of flora

The Importance of Skin Flora

"The skin is the human body's largest organ, colonized by a diverse milieu of microorganisms, most of which are harmless or even beneficial to their host... The cutaneous innate and adaptive immune responses can modulate the skin microbiota, but the microbiota also functions in educating the immune system."

"Symbiotic microorganisms occupy a wide range of skin niches and protect against invasion by more pathogenic or harmful organisms. These microorganisms may also have a role in educating the billions of T cells that are found in the skin, priming them to respond to similarly marked pathogenic cousins."

Nature Reviews Microbiology

The Intelligence of Skin Flora

"*Staphylococcus epidermidis*, a commensal bacterium, has recently been demonstrated to modulate the host innate immune response.

Phenol-soluble modulins produced by *S. epidermidis* can selectively inhibit skin pathogens, such as *S. aureus* and Group A *Streptococcus*, and can even co-operate with host antimicrobial peptides (AMPs) to enhance killing."

Nature Reviews Microbiology

The Intelligence of Skin Flora

"Recent studies demonstrate that commensal-induced TLR signalling may be necessary for cell survival and repair during infection. Lipoteichoic acid produced by *S. epidermidis* can inhibit skin inflammation through a TLR2- and TLR3-mediated crosstalk mechanism.

In addition, *S. epidermidis* triggers keratinocyte expression of AMPs through a TLR2-dependent mechanism. This body of work definitively links commensal skin microorganisms with modulation of the innate immune response."

Nature Reviews Microbiology

Are Bacteria Beneficial or Pathogenic?

"Another outstanding question is whether indigenous skin microorganisms provide some benefit to the host, and whether they are truly symbiotic, or commensal.

In a recent example of host and microorganism joining forces to combat invasion by pathogens, the commensal skin bacteria *S. epidermidis* was demonstrated to **inhibit nare colonization and biofilm formation by *Staph. Aureus*.**"

Nature Reviews Microbiology

Are Bacteria Beneficial or Pathogenic?

"This example raises several important points for consideration, including the **possibility of the host and the microorganism evolving together**.

Furthermore, as our arsenal of antimicrobial weapons falls short in the battle against *S. aureus* and other potential pathogens, **perhaps therapeutics derived from microorganisms themselves will offer promise as viable alternatives.**"

Nature Reviews Microbiology

It's a Complex Relationship!

"Current research related to infectious diseases of the skin targets microbial virulence factors and aims to eliminate harmful organisms. Some of these same microbes potentially also play an opposite role by protecting the host.

The complex host- microbe and microbe-microbe interactions that exist on the surface of human skin illustrate that the microbiota have a beneficial role, much like that of the gut microflora. Microbes participate in inflammatory diseases yet may not cause infections."

British Journal of Dermatology

Don’t Disrupt the Balance!

“For the clinician, understanding these principles should guide appropriate use of currently available systemic and topical antibiotics. **An overuse of antibiotics may disrupt the delicate balance of the cutaneous microflora leaving the skin susceptible to pathogens previously kept at bay by the existing resident and mutual microbiota.**

Further advances in our understanding of microbial pathogens as well as an increase in the appreciation of the complex relationship that humans have with the resident microbes promise to lead to novel diagnostic and therapeutic approaches to dermatological disease.”

British Journal of Dermatology

Step One: Avoid Disruptions to your Microflora

- Vaccinations
- Antibiotics
- Medications
- Toxic, processed food
- Antibacterial Soaps
- All Toxic Household Cleaners
- All Toxic Personal care and Cosmetic products
- A Sedentary Lifestyle
- Chronic Stress: Chemical, Physical, Emotional

Chronically elevated Cortisol Levels Cause:

- Decreases protein synthesis
- Increases protein breakdown
- **Interferes with skin regeneration and healing**
- Causes shrinking of lymphatic tissue
- Diminishes lymphocyte numbers and functions

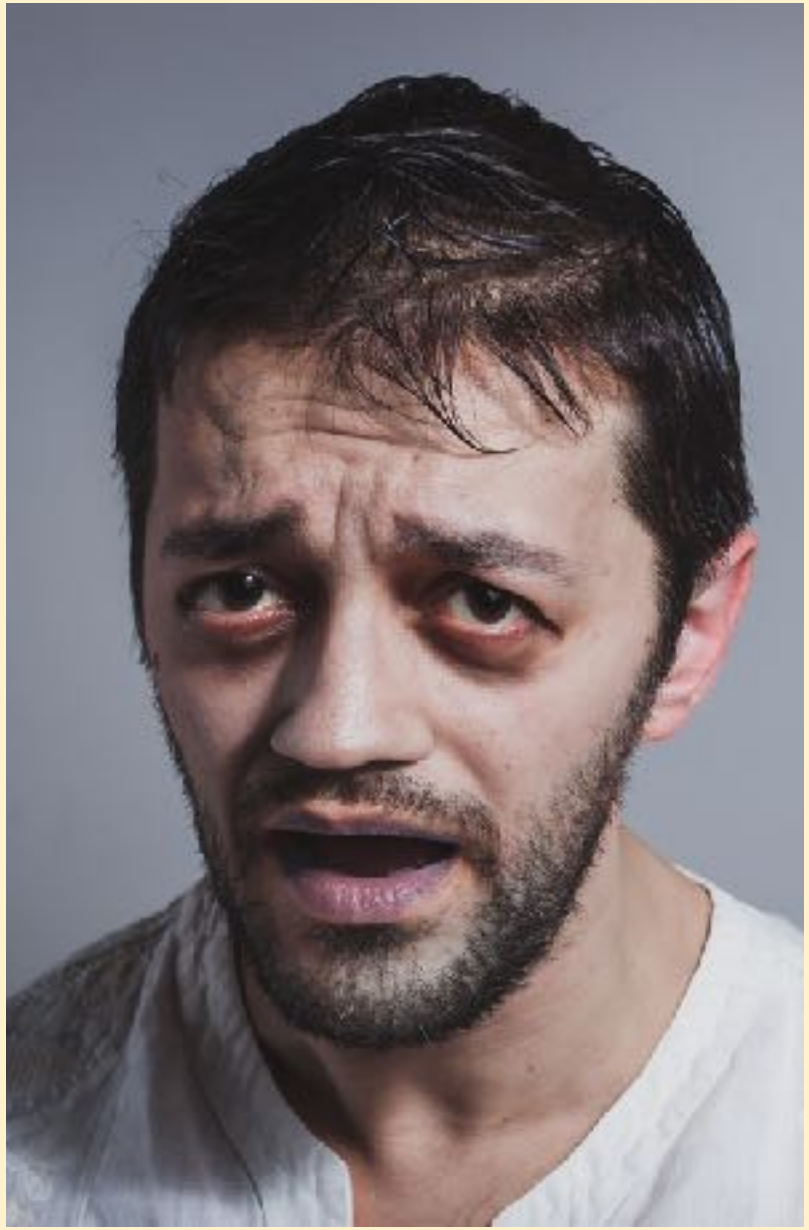
Emotional

Physical

Chemical

These organs are responsible for Skin Health:

- Liver
- Kidneys
- Adrenals
- Thyroid
- Large Intestine
- Small Intestine



10 Common Toxic Chemicals in Beauty Products

- Parabens
- Synthetic colors
- Fragrance
- Phthalates
- Triclosan
- Sodium lauryl sulfate (SLS
- Formaldehyde
- Toluene
- Propylene Glycol
- Sunscreen Chemicals

Don’t forget to filter your Water!

- Most cities within the U.S. treat the city water with chlorine concentrations of two to four parts per million; and they report the average person receives 50 percent of their chlorine exposure from bathing.
- Chlorinated water can have long-term effects on human skin.
- Chlorine can destroy much of the needed protein within the body. Short term, this can lead to dry, itchy skin. Continued depletion can lead to very dry skin.
- Water alone can deplete the skin of its natural oils that hold moisture in, and chlorine only intensifies that effect.

The Second Step: Optimize Your Gut Flora

- Organic plant based diet (Locally grown, seasonal foods)
- Healthy fats such as coconut oil and olive oil
- Fermented Vegetables
- Probiotic Supplements
- Juice Vegetables
- Blend Fruits
- Raw Dairy
- Reduce Omega 6 and Increase Animal based Omega 3

The Basics of Skin Health

Dark Green Leafy Vegetables

- Promote optimal function of natural detoxification systems

- Kale
- Spinach
- Dandelion greens
- Broccoli
- Chlorella

The Basics of Skin Health

Antioxidant Rich Foods

- Help protect your body against free radicals

- Goji Berries
- WIld Blueberries
- Dark Chocolate
- Pecans
- Artichoke
- Elderberries
- Blackberries
- Kidney Beans

The Basics of Skin Health

Healthy Fats

- Supports healthy hormone production and supports skin regeneration

- Omega 3
- Coconut Oil
- Olive Oil
- Organic Grass-fed Butte

The Basics of Skin Health

Fermented Foods

- Help promote growth of beneficial bacteria, supports healthy immune function
- Help increase vitamin b, omega 3, digestive enzyme, and lactase/lactic acid

- Kefir (fermented milk)
- Kombucha
- Sauerkraut
- Pickles
- Miso
- Kimchi

The Basics of Skin Health

Carotenoids

- Vital for skin health and can change the pigment of your skin
- 2 categories carotene and xanthophils

- Carrots
- Sweet Potatoes
- Kale
- Spinach
- Astaxanthin (from marine algae)

Feed Your Skin from the Outside

- Organic Shea Butter
- Cocoa Butter
- Virgin Coconut Oil
- Jojoba Oil
- Murumuru Butter
- Palm Oil
- Aloe Vera Juice

But What do I do for my Skin Disease?

- Acne
- Eczema (Atopic Dermatitis)
- Psoriasis
- Skin Cancer

Skin Flora and Acne

“Acne may respond favorably to probiotics due to their involvement in normalizing the gut-brain-skin axis.”

Gut Pathogens

“...we found several plant extracts (e.g. Ginseng or Black currant) which inhibit the inflammation-causing bacterium Propionibacterium acnes, but do not affect beneficial species like coagulase-negative staphylococci...After 3 weeks, the microflora of 91% of the volunteers had been rebalanced in this way. Furthermore, these formulations have been shown to exhibit excellent skin compatibility compared to an antibacterial product. Thus, prebiotic substances have the potential to provide a gentle and sustainable alternative to undirected antibacterial ingredients.”

International Journal of Cosmetic Science

Skin Flora and Eczema (Atopic Dermatitis)

"Supplementation of Lactobacillus sakei in children with atopic eczema-dermatitis syndrome (AEDS) was associated with a **substantial clinical improvement** and a significant decrease in chemokine levels, reflecting the severity of AEDS."

International Journal of Cancer

"Impairment of the **intestinal mucosal barrier appears to be involved in the pathogenesis of atopic dermatitis.** The study suggests that probiotic supplementation may stabilize the intestinal barrier function and decrease gastrointestinal symptoms in children with atopic dermatitis."

Journal of Pediatrics

Skin Flora and Psoriasis

"**Psoriasis and atopic dermatitis** (AD) are chronic inflammatory skin diseases, which negatively influence the quality of life. In the last years, several evidences highlighted **the pivotal role of skin bacteria in worsening the symptomatology of AD and psoriasis.**"

"Significant differences between the skin microbiota of psoriatic individual and healthy and AD subjects were observed."

Clinical and Molecular Allergy

Skin Flora and Eczema (Atopic Dermatitis)

"High levels of consumption (>92 times/month) of fermented foods… were associated with a lower prevalence of AD.

In contrast, high levels of consumption of meat and processed foods were strongly associated with the prevalence of AD. Interestingly, the consumption of **coffee**, **chocolate, and ice cream was significantly negatively associated with the prevalence of AD."**

Nutrition Research

Coffee and Skin Cancer

"Coffee intake appears to exert a moderate **protective effect against Basal cell cancer development**"

European Journal of Nutrition

"Increasing caffeine intake and caffeinated coffee consumption is associated with **decreased risk of cutaneous malignant melanomas.**"

Journal of Epidemiology

Vitamin A and E for Acne and Atopic Dermatitis

"We conclude that low **vitamin A and E plasma levels have an important role in the pathogenesis of acne** and in the aggravation of this condition."

Clinical Experimental Dermatology

"This study suggests that vitamin E can improve the symptoms and the quality of life in patients with AD. **As vitamin E has no side effects** with a dosage of 400 IU/day, it can be recommended for the treatment of AD."

Journal of Research in Medical Sciences

Vitamin A and E for Psoriasis

"Supplementation with antioxidants coenzyme Q(10), **vitamin E**, and selenium could be feasible for the management of patients with severe forms of psoriasis."

Digestive Diseases and Sciences

"Calcium, vitamin D, **vitamin A** may have a therapeutic role in diseases such as rosacea and psoriasis by influencing the innate antibiotic and immunomodulator cathelicidin."

Journal of Investigative Dermatology

Sources of Vitamin A

- Beef Liver
- Carrots
- Sweet potato
- Kale
- Spinach
- Apricots
- Broccoli
- Butter
- Eggs
- Winter Squash

Natural Sources of Vitamin E

- Almonds
- Spinach
- Sweet Potato
- Avocado
- Wheat germ
- Sunflower seeds
- Palm oil
- Butternut squash
- Trout
- Olive Oil

Vitamin D and Skin Diseases

“Subjects with atopic eczema, acne vulgaris, seborrheic dermatitis and rosacea improve following sunlight exposure.”

Photodermatology

“Vitamin D plays an important role in the immune system, and its deficiency has been implicated in various skin diseases, including atopic dermatitis and psoriasis.”

“Vitamin D deficiency was more frequent in patients with acne and serum vitamin D levels were inversely correlated with acne severity, especially in patients with inflammatory lesions..”

PLoS One

Vitamin D and Skin Diseases

"Vitamin D deficiency was higher among children with **asthma, allergic rhinitis, atopic dermatitis, acute urticaria, and food allergy**."

European Annals of Allergy and Clinical Immunology

"**Increased UVA exposures** (indoor light) and **decreased cutaneous Vitamin D(3) levels** may be responsible for the increasing incidence of melanoma."

Medical Hypotheses

Optimize Your Vitamin D levels

- **UVB exposure** from the Sun is the best way to optimize your vitamin D levels
  - At least 20 minutes of **sun exposure daily** during mid day
  - Your shadow shouldn't be longer than your height

- Most regions of the planet don't get proper sunlight for **6 months** out of the year
- Vitamin D3 supplementation during the winte
- Adults required about **8,000 IUs per day**

Vitamin D and Vitamin K2

- Vitamin K2 is essential for proper utilization of vitamin D

Sources of Vitamin K2

- Grass-fed organic animal products (eggs, butter, dairy)
- Fermented foods
- Certain cheeses (Brie, Gouda)

Curcumin for All Skin Disorders!

"Today, there is growing scientific evidence suggesting curcumin's utility in the treatment of **chronic pain, inflammatory dermatoses, acceleration of wound closure, skin infections, as well as cosmetic ailments such as dyspigmentation.** In addition, curcumin may have a **protective role** against various pollutants and cytotoxic agents, indicating that it may be beneficial in a mitigational or prophylaxis role."

"Topical administration of curcumin can directly deliver it to the affected tissue making it useful in treating skin-related disorders."

Journal of Drugs in Dermatology

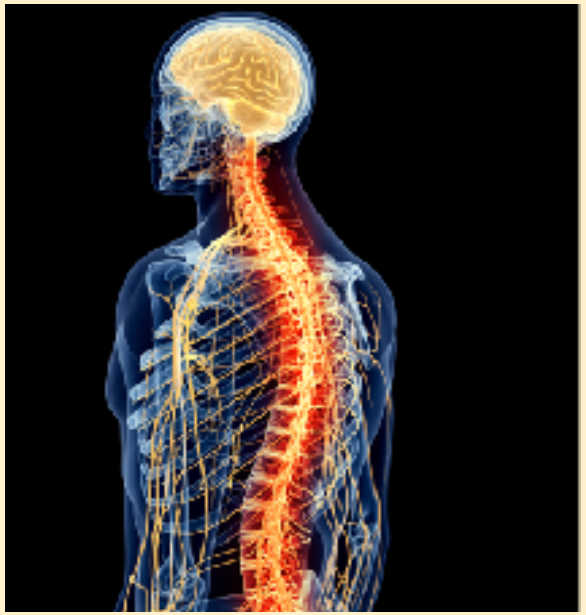
Curcumin for All Skin Disorders!

"Turmeric (Curcuma longa), a commonly used spice throughout the world, has been shown to exhibit anti-inflammatory, antimicrobial, antioxidant, and anti-neoplastic properties. Growing evidence shows that an active component of turmeric, curcumin, may be used medically to treat a variety of dermatologic diseases.

"Skin conditions examined include acne, alopecia, atopic dermatitis, facial photoaging, oral lichen planus, pruritus, psoriasis, radiodermatitis, and vitiligo... Overall, there is early evidence that turmeric/curcumin products and supplements, both oral and topical, may provide therapeutic benefits for skin health."

Phytotherapy Research

The 5 Keys to Health and Healing



Proper nerve supply

Regular Exercise

Proper Nutrition

Sufficient Rest

Prayer and Meditation

References

1. Dermatol Clin. 2012 Jan;30(1):5-18, vii. doi: 10.1016/j.det.2011.09.004.
2. https://medlineplus.gov/magazine/issues/fall08/articles/fall08pg22-25.html
3. http://dermnetnz.org/treatments/topical-steroids.html
4. http://www.rxlist.com/dovonex-ointment-side-effects-drug-center.htm
5. http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/PediatricAdvisoryCommittee/UCM205385.pdf
6. http://www.rxlist.com/protopic-drug.htm
7. http://www.rxlist.com/elidel-drug.htm
8. https://www.drugs.com/penicillin.html
9. https://www.drugs.com/sfx/acyclovir-side-effects.html
10. http://www.rxlist.com/imuran-drug/patient-images-side-effects.htm
11. https://forefrontdermatology.com/skin-fun-facts/
12. http://www.hopkinsmedicine.org/neurology_neurosurgery/centers_clinics/cutaneous_nerve_lab/patients/skin_anatomy.html
13. Grice, E. A.; Kong, H. H.; Conlan, S.; Deming, C. B.; Davis, J.; Young, A. C.; Bouffard, G. G.; Blakesley, R. W.; Murray, P. R. (2009). "Topographical and Temporal Diversity of the Human Skin Microbiome". Science. 324 (5931): 1190–2. doi:10.1126/science.1171700. PMC 2805064. PMID 19478181
14. Pappas S. (2009). Your Body Is a Wonderland ... of Bacteria. ScienceNOW Daily News
15. Theodor Rosebury. Life on Man: Secker & Warburg, 1969 ISBN 0-670-42793-4
16. Nat Rev Microbiol. 2011 Apr; 9(4): 244–253. doi: 10.1038/nrmicro2537
17. Br J Dermatol. 2008 Mar; 158(3): 442–455. doi: 10.1111/j.1365-2133.2008.08437.x
18. http://www.freedrinkingwater.com/water-education3/7-water-swimming-chlorine.htm
19. Acta Derm Venereol. 1980;60(4):337-40. PMID: 6163281
20. Photodermatol. 1989 Apr;6(2):80-4. PMID: 2748434

References

21. Clin Exp Dermatol. 2006 May;31(3):430-4. PMID: 16681594
22. PLoS One. 2016 ;11(8):e0161162. Epub 2016 Aug 25. PMID: 27560161
23. Gut Pathog. 2011;3(1):1. Epub 2011 Jan 31. PMID: 21281494
24. Phytother Res. 2016 May 23. Epub 2016 May 23. PMID: 27213821
25. Int J Cosmet Sci. 2007 Feb;29(1):63-4. PMID: 18489317
26. Zhongguo Dang Dai Er Ke Za Zhi. 2010 Sep;12(9):734-9. PMID: 20849726
27. Epidemiology. 2012 Mar 21. Epub 2012 Mar 21. PMID: 22441545
28. Int J Cancer. 2003 Aug 20;106(2):178-86. PMID: 20408346
29. Nutr Res. 2016 Feb ;36(2):125-33. Epub 2015 Nov 19. PMID: 26826428
30. Am J Clin Dermatol. 2010;11(5):351-61. PMID: 20642296
31. J Pediatr. 2004 Nov;145(5):612-6. PMID: 15520759
32. Eur Ann Allergy Clin Immunol. 2011 Jun ;43(3):81-8. PMID: 21789969
33. J Res Med Sci. 2015 Nov ;20(11):1053-7. PMID: 26941808
34. Leuk Res. 2003 Mar;27(3):275-83. PMID: 12010339
35. Eur J Nutr. 2016 Jul 7. Epub 2016 Jul 7. PMID: 27388462
36. Med Hypotheses. 2009 Apr;72(4):434-43. Epub 2009 Jan 19. PMID: 19155143
37. Epidemiology. 2015 Jul 10. Epub 2015 Jul 10. PMID: 26172864
38. Oncol Rep. 2015 Nov 12. Epub 2015 Nov 12. PMID: 26573768
39. Phytother Res. 2003 Mar;17(3):217-21. PMID: 19260281
40. Asian Pac J Cancer Prev. 2014 ;15(16):6575-80. PMID: 25169490
41. Di Yi Jun Yi Da Xue Xue Bao. 2005 Dec;25(12):1517-21. PMID: 16361152

References

42. Cancer. 2005 Aug 15;104(4):879-90. PMID: 16007726
43. Auris Nasus Larynx. 2003 Dec;30(4):403-12. PMID: 14656567
44. Biomed Res Int. 2015 ;2015:283634. Epub 2015 May 18. PMID: 26090395
45. Life Sci. 2003 Dec 19;74(5):663-73. PMID: 8219661
46. Clin Mol Allergy. 2016 ;14:2. Epub 2016 Jan 25. PMID: 26811697
47. Dig Dis Sci. 2005 Oct;50(10):1951-8. PMID: 19041224
48. Br J Dermatol. 1986 Oct;115(4):421-9. PMID: 3022784
49. Int J Clin Exp Med. 2015;8(6):9580-9584. Epub 2015 Jun 15. PMID: 26309628
50. Biochimie. 2016 Jan 27. Epub 2016 Jan 27. PMID: 26826458
51. Biofactors. 2013 Jan-Feb;39(1):141-9. Epub 2013 Jan 11. PMID: 23315856
52. Adv Exp Med Biol. 2007;595:425-51. PMID: 17569223
53. J Drugs Dermatol. 2013 Oct ;12(10):1131-7. PMID: 24085048
54. Phytother Res. 2016 May 23. Epub 2016 May 23. PMID: 27213821
55. Adv Exp Med Biol. 2007;595:343-57. PMID: 17569219
56. J Allergy Clin Immunol. 2009 Sep;124(3 Suppl 2):R13-8. PMID: 19720207
57. J Invest Dermatol. 2010 Jan 21. Epub 2010 Jan 21. PMID: 20090765