

***PowerLight***  
***LED Light Therapy***

The FUTURE of corrective skin  
care.....TODAY

# LED facial treatments

- Effective when used with correct protocols
- Non thermal stimulation of collagen
- Increases circulation and lymphatic drainage
- Enhances effectiveness of other procedures
- More effective with certain topicals
- Great anti-inflammatory in the red/near infrared wavelengths
- Effective acne treatment in red/blue wavelengths

# What can LEDs DO

- Create fresh, younger looking complexion
- Fill in fine lines and wrinkles
- Reduce edema and erythema
- Treat acne
- Counteract UV damage: wrinkles
- Moisturize dry skin
- Can be used on all skin types

# What LEDs can NOT do *alone*

(*but **CAN** with help from other procedures*)

- Treat hyperpigmentation
- Treat broken capillaries
- Work on 100% of your clients
- Give immediate results in most clients

# Definitions

- Nanometer (nm) , indicates wavelength or color ( 660nm, 950nm,420nm, 480nm )
- Milliwatts (mw) is a measure of power output
- Joule is a measure of energy of light
- Joules per square centimeter ( $\text{j}/\text{cm}^2$ ) is a dosage measurement (  $4\text{j}/\text{cm}^2$  in 90 secs)
- Frequency is the number of pulses per second ( Hz, hertz ) ( 20, 292, 5000)

# Treatment Protocols

- LEDs can be used every day without concern
- Optimally, treatments should be done once a week with home care topical use everyday
- Enhanced effects can be seen with 2X-3X week treatments, especially with inflammatory skin conditions
- Maintenance treatments should be done every month to 6 weeks after initial 6-8 treatments
- For collagen production, the optimal dosage is recommended to be at least  $4\text{j}/\text{cm}^2$ ,  $6\text{-}8\text{j}/\text{cm}^2$
- Multiple pulse (frequency) patterns in one session are more effective

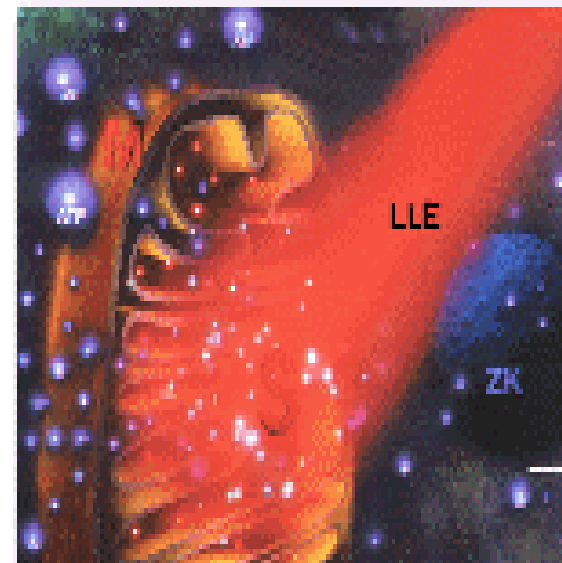
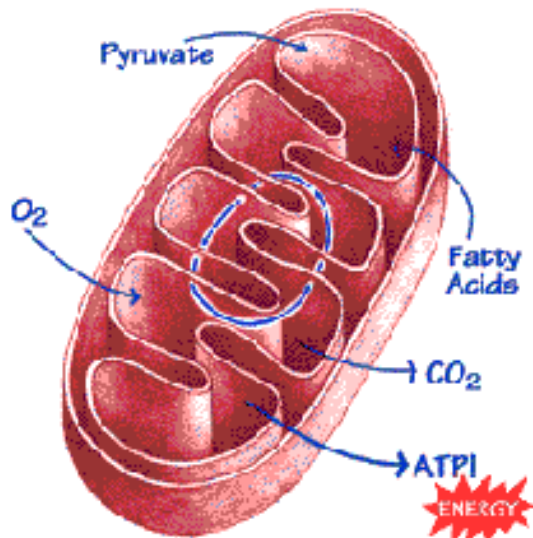
# LED effectiveness

- LED treatments have a clinically effective dosage range..... $4\text{j}/\text{cm}^2$  to  $8\text{j}/\text{cm}^2$  to achieve collagen production
- Pulsed frequencies have shown therapeutic effects: Nogier/Bahr frequencies
- Combine red and blue wavelengths for more effective acne treatment

# Photon absorption not thermal damage

- Unlike IPL and other thermal injury treatments, LEDs cause absorption of energy in the form of photons from light
- Similar in many ways to vitamin absorption
- They cause a cascade of antioxidant enzymatic activity in the cell
- Latest studies show gene stimulation that leads to natural collagen and elastin production

# Mitochondria are stimulated by monochromatic light energy



# Photons attach to chromospores



# NASA's Scientists Use LEDs

To:

- Heal wounds in space and on earth
- Speed up recovery of musculoskeletal injuries in NAVY seals
- Treat hard-to-heal sores on cancer patients and diabetics
- Chosen over LASERS due to safety and cost

# NASA LED Program

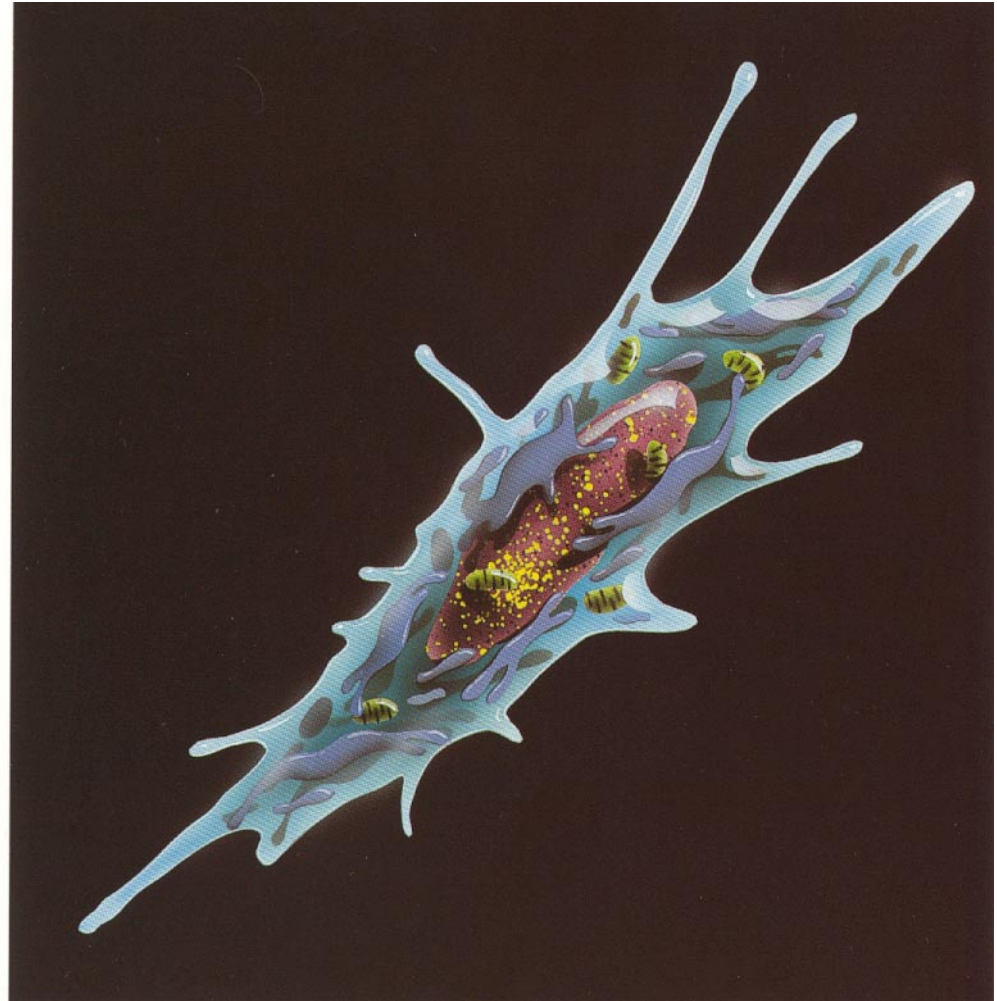
- Studies show **200% increase in human collagen synthesis** over control group
- Growth rate of **fibroblasts increased 50-75%** over control group two to three days after exposure
- Discovered the effect of near infrared light on gene expressions in human tissue

# Monochromatic Red and Near Infrared Light

- Increases Oxygen and Blood Flow
- Stimulates antioxidant enzyme release
- Facilitates pain reduction
- Promotes muscular relaxation
- Stimulates fibroblast, collagen production
- Increases lymphatic drainage

# Fibroblast

- Fibroblast/Fibrocytes are the most common cells of the connective tissues
- Elastin-elastic fibers give skin the **ability to stretch and move**
- Their production is dependent on **fibroblasts**



By increasing fibroblast production, we are strengthening the width and quality of the connective tissues

# New Capillary Growth

- LED red/infrared therapy increases vascularity by **creating new capillaries**
- New capillaries start as outgrowths of endothelial cells
- Recent studies show **angiogenesis** ( new blood vessel formation) is **related to fibroblastic activity**

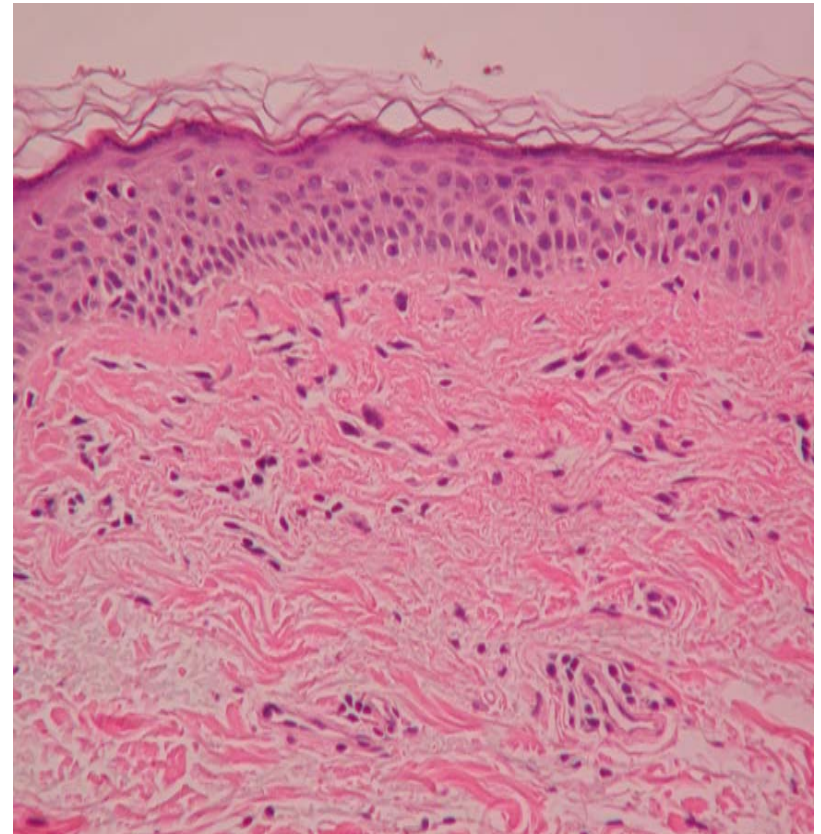
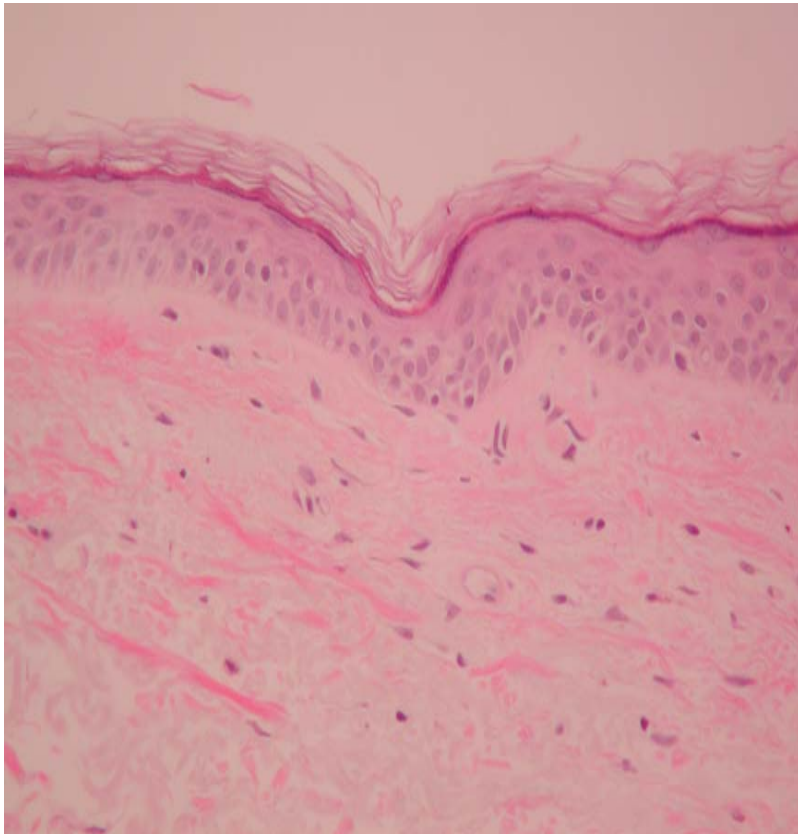
# New Capillary Growth



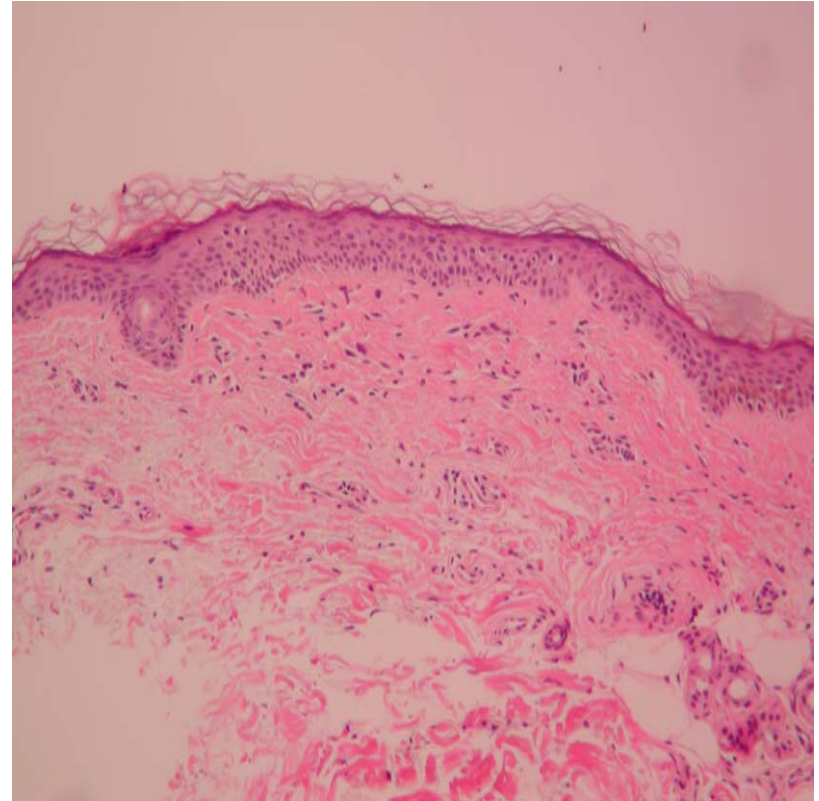
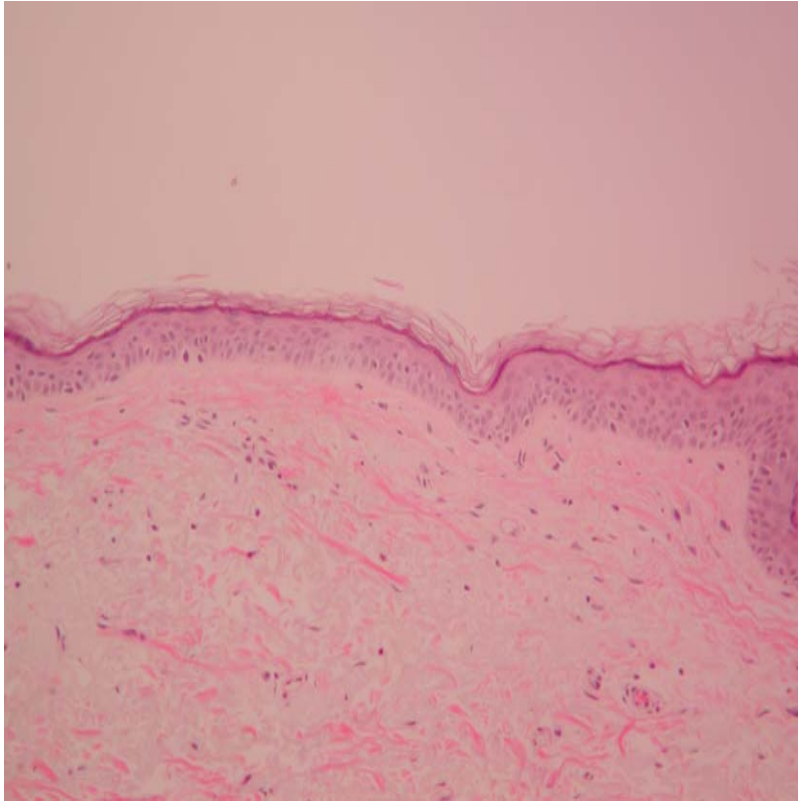
# Results After 6 Treatments



# Biopsy results after 2 treatments at $4\text{j}/\text{cm}^2$ - 3 minutes total exposure



# Biopsy results after 2 treatments at $4\text{j}/\text{cm}^2$



# Before/After 5 Treatments



# Treating Acne

Treatment with LEDs target all the conditions associated with acne:

- Infection ( *p. acnes* bacteria )
- Inflammation
- Wounding

# Treating Acne with LEDs

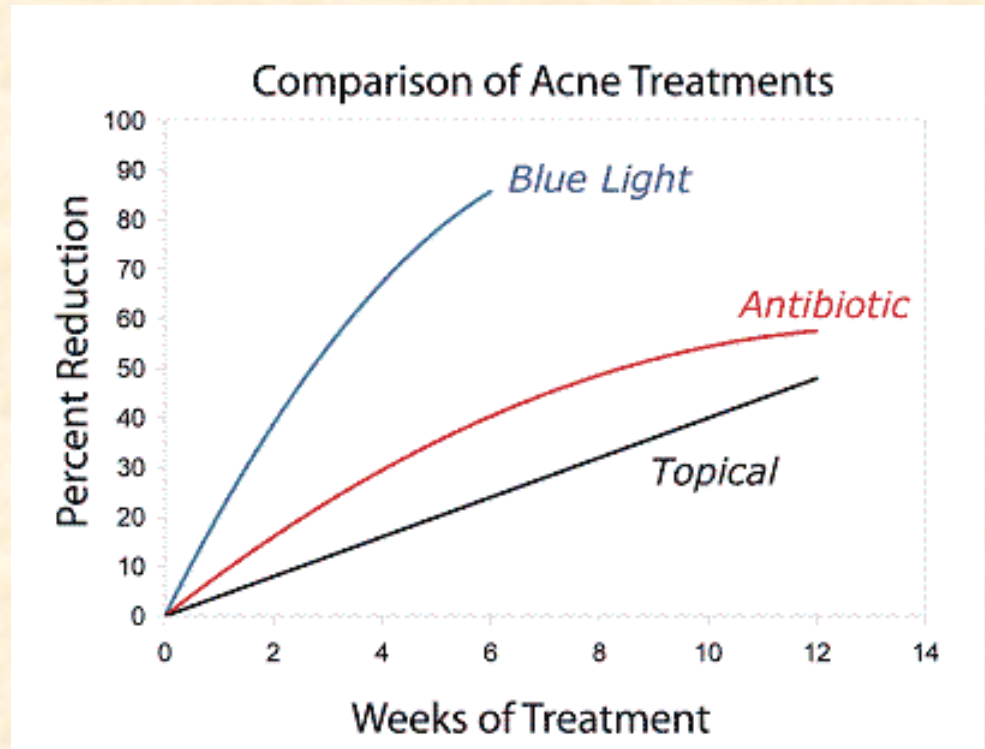
- Blue light is an antibacterial
- Blue light sits on the surface and kills bacteria near the surface
- Red/near infrared light penetrates deep to reduce the inflammation associated with the infection, esp. with cystic acne
- Topical salicylic acid can be used to help treat inflammation

# Why Use Blue & Red Light Phototherapy to Treat Acne?

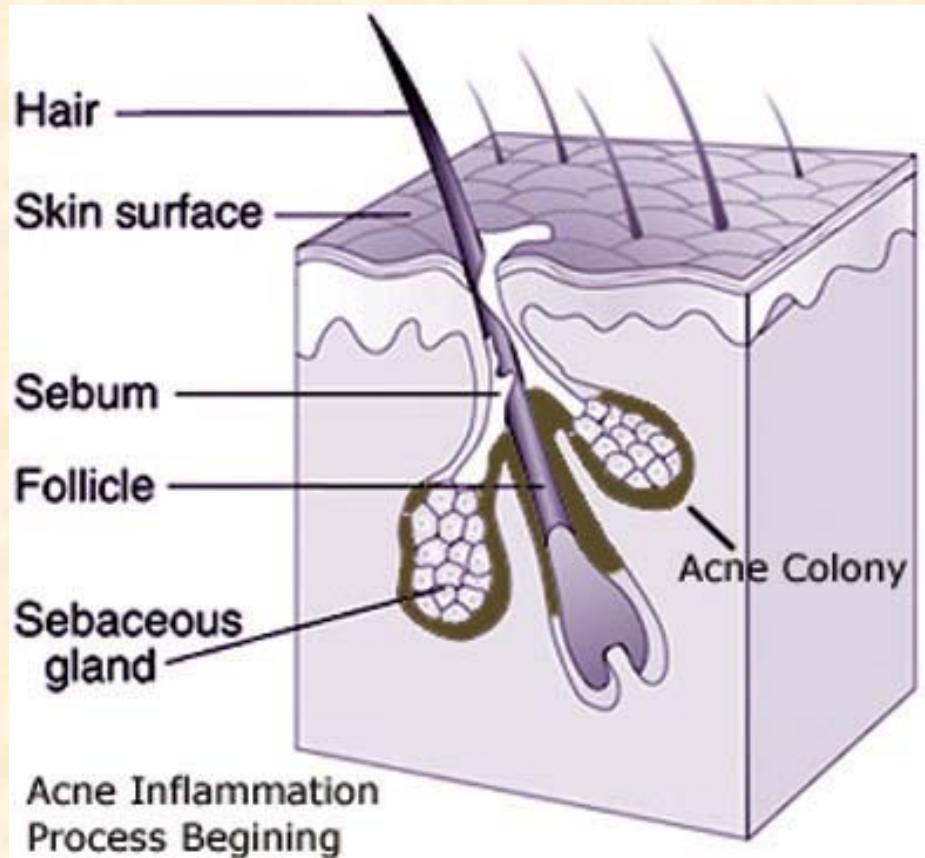
**Blue light** reacts with acne molecules to kill bacteria.

**Red Light** improves blood flow and promotes healing.

Power Light phototherapy produces **better results** in a **shorter time** with antibiotics or topical treatments.



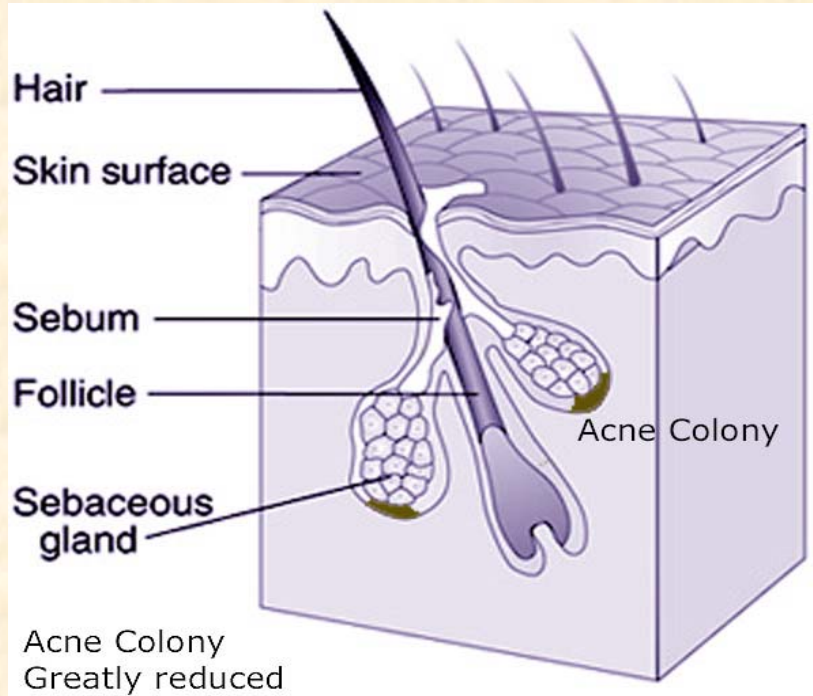
# How Does PowerLight LED Light Therapy work for Acne?



**When pores clog, conditions are right for acne growth, and inflammation starts.**

*Safe, Gentle, and Effective*

# How Does PowerLight LED Light Therapy Work?



**The acne infection is greatly reduced after treatment.**

**No Harsh Antibiotics or Chemicals**

# Blue Light Effects

- According to a report presented to the American Academy of Dermatology in October of 2002, acne improves after a few light treatments
- 15 minutes of exposure to low-level blue light twice a week for a month reduced acne symptoms by 60%
- The effect lasted up to 8 months
- Light gets at the core of what causes acne eruptions: **P. acnes**
- **Porphyrins** exposed to blue wavelengths produce free radicals that kill P. acnes
- Parade Magazine November 2002

# Blue/Red for Acne

From British Journal of Dermatology  
Volume 142 Issue 5 Page 973 - May 2000  
doi:10.1046/j.1365-2133.2000.03481.x  
**Papageorgiou P, Katsambas A, Chu A.**

- In this study they evaluated the use of blue light (peak at 415 nm) and a mixed blue and red light (peaks at 415 and 660 nm) in the treatment of acne vulgaris.
- 107 patients with mild to moderate acne vulgaris were randomized into four treatment groups: blue light, mixed blue and red light, cool white light and 5% benzoyl peroxide cream.
- Assessments were performed every 4 weeks.

# Blue/Red for Acne

- The blue/red combination was significantly superior to that achieved by blue light, benzoyl peroxide or white light .
- The final ***mean improvement in comedones by using blue-red light was 58%*** . Again, better than that achieved by the other active treatments used.
- **“We have found that phototherapy with mixed blue-red light, probably by combining antibacterial and anti-inflammatory action, is an effective means of treating acne vulgaris of mild to moderate severity, with no significant short-term adverse effects.”**

# Additional Conditions that are affected by LED treatments

- Rosacea: use with Rosacea Care topical for best results
- Eczema / Psoriasis
- Post Op
- Post Aesthetic Procedure
- Wound management
- Sports Injuries
- Diabetic Neuropathy

# PowerLight wavelengths

- Near Infrared 950nm infrared Light :  
deep penetration into muscles
- Red Light 660nm Red Light:  
penetrates into the dermis
- Blue Light 480nm Blue Light:  
antibacterial, acne, sits on surface
- Violet Light 420nm Violet Light :  
antibacterial, acne

# Post Procedure

- Use after Laser and IPL
- Use after peels
- Use after microdermabrasion
  
- Promotes the growth of healthy collagen and thickens the base of the epidermis in conjunction with the above procedures

# Post Op

- LEDs can reduce the edema and erythema associated with surgical procedures if used post-operatively
- LEDs will reduce the chance of scarring
- LEDs will reduce the down time associated with surgery
- LEDs will improve the appearance of bruised tissue at a quicker rate

# Light Is Not Enough

- LEDs alone have been shown to be efficacious in about 65% of treatments
- LEDs have shown the ability to enhance topical penetration
- LEDs appear to mimic topical retinoid and antioxidant use via different biological pathways
- When used in conjunction with retinoids and antioxidants, LEDs compress the time frame of results and increase efficacy to over 90%
- Used with hyaluronic acid gel to get immediate plumping of tissue

# Power Light System

- Use with Power Gel to get immediate results
- Use with Rosacea Care to treat inflammatory skin conditions
- Use post Power Peel to reduce redness and enhance collagen growth
- Use post chemical peel to reduce irritation
- Use with micro-current to get immediate effects

# Why PowerLight?

- Largest hand held wands to cover more area in shortest time
- 2 wands can be used at same time to shorten effective treatment time
- Proven technology, delivers  $4\text{j}/\text{cm}^2$  in less than 90 secs
- Uses Blue and Red/ near infrared wavelengths that work
- Priced very competitively