

# Principles of Cosmetic Dermatology

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## Principles of Cosmetic Dermatology

- Those with extensive **clinical** dermatology experience don't always fully understand the needs of **cosmetic** dermatology patients!
- *In this module, we're going to...*
  - Define the changes seen in aged/damaged skin.
    - Explain why these changes occur.
  - Review how the various cosmetic products and procedures used in dermatology specifically address the needs of our patients.

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## Principles of Cosmetic Dermatology



**Changes seen in aged/damaged skin...**

- Lines and wrinkles.
- Loss of "fullness".
- Irregular surface texture.
- Irregular surface tone.

All products and procedures work by addressing one or more of these four changes!

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## Principles of Cosmetic Dermatology



**Changes seen in aged/damaged skin...**

- Lines and wrinkles.
- Loss of "fullness".
- Irregular surface texture.
- Irregular surface tone.

All of these changes are influenced by the same underlying process!!

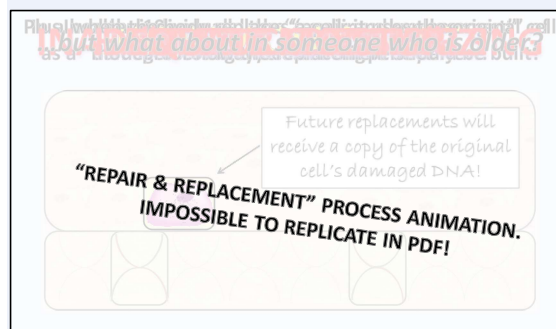
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## Principles of Cosmetic Dermatology

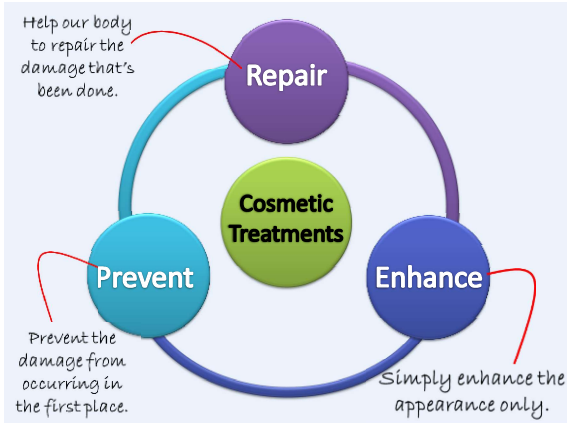
- All components of our body have a natural life cycle (on average ranging from only a few days to a few months).
  - The reason we don't just "fall apart" is because *our body is constantly repairing and replacing every living cell* which has either been damaged or reached the end of its natural life cycle.
    - The **imperfect repair and replacement** of our body's living cells - **and the substances which support that life** - is **"the root of all evil"**.

At least as far as our skin goes!

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THE "REPAIR & REPLACEMENT" PROCESS



While *preventative measures* don't rebuild damaged tissue, they can decrease the burden which might otherwise be encumbering the body's own natural "regenerative potential".

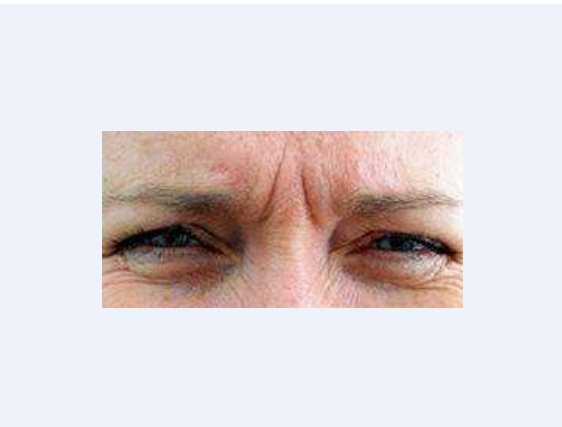
Therefore, *preventative measures* can enable the body to repair and replace its own tissue, to the extent that the patient's "regenerative potential" is strong enough to do so.

### Principles of Cosmetic Dermatology

*Lines & Wrinkles*

- The proper medical term is "rhytid".
- Occur when the skin has been stretched beyond, but then fails to return to, its original state.
  - **DYNAMIC COMPONENT**
    - Due to underlying muscle contraction.
  - **STATIC COMPONENT**
    - Persists independent of any underlying muscle contraction.

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### Principles of Cosmetic Dermatology

*Lines & Wrinkles*

- Dynamic Rhytids
  - Determined by one's "expressiveness".
  - **Treated w/ Botulinum toxin**
    - Toxin produced by *Clostridium botulinum*.
    - Injected into the affected muscle where it prevents the release of *acetylcholine* (the neurotransmitter that enables muscle contraction).
    - Effects last for approximately 3 months.
    - **NO BACTERIA IS WITHIN THE INJECTIONS!!**

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**PENICILLIUM FUNGUS**  
(source of Penicillin)

## Principles of Cosmetic Dermatology

### Lines & Wrinkles

- Static Rhytids
  - Breakdown in the amount and quality of collagen and elastin is at the heart of static rhytid formation!
    - Collagen
      - Protein which provides strength and resistance to stretching and deformation.
    - Elastin
      - Protein which allows the skin to return (snap back) to its original state after being stretched.

*Occurs because of imperfect "repair and replacement"!*

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**Ehlers-Danlos Syndrome**  
(defective collagen doesn't resist skin stretching)

## Principles of Cosmetic Dermatology

### Lines & Wrinkles

- Static Rhytids
  - It is extremely difficult to rebuild collagen and elastin.
    - The reason prevention is so important!
      - UV avoidance and sunscreen use.
      - Avoidance of "oxidative stress" (e.g., smoking).
      - Use of antioxidants (esp. "topical").
        - » [CLICK HERE](#) to learn more about "free radicals" and how they affect our body.
      - Topical retinoids (e.g., Tretinoin, Adapalene, Tazarotene) help prevent collagen breakdown.

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**107 Years Old!!**

## Principles of Cosmetic Dermatology

### Lines & Wrinkles

- Static Rhytids Treatment
  - Topicals
    - Applying "collagen cream" **does not** increase the level of collagen in the skin!
    - Otherwise...
      - Retinoids
      - Antioxidants

*Topicals have never been showing to provide significant improvement in the repair of collagen and elastin.*

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## Principles of Cosmetic Dermatology

### Lines & Wrinkles

- Static Rhytids Treatment
  - Procedures
    - In order for a treatment to provide any significant improvement, it **must** target the dermis!
      - “Surface” treatments don’t cut it!
    - *Instead, think “aggressive”...*
      - Deep Chemical Peels (e.g., TCA Peels)
      - Laser Resurfacing (e.g., CO2 Laser)
      - “Aggressive” Microdermabrasion

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### Loss of “Fullness”

- Occurs because of atrophy of the subcutaneous fat and decreased **extracellular matrix**.
  - *Extracellular matrix primarily includes...*
    - Collagen
    - Elastin
    - **Glycosaminoglycans**
      - Provide much of the volume within the dermis and especially help to retain moisture.

Also degrades because of imperfect “repair and replacement”!

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## Principles of Cosmetic Dermatology

### Loss of “Fullness”

- Treatment
  - Prevention
    - UV avoidance and sunscreen use.
    - Avoidance of “oxidative stress” (e.g., *smoking*).
    - Use of antioxidants (esp. “topical”).
    - Topical retinoids can help to decrease the enzymes which “break down” the extracellular matrix.

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## Principles of Cosmetic Dermatology

### Loss of “Fullness”

- Treatment
  - Replacement
    - **Hyaluronic Acid Fillers**
      - Include products like Restylane®, Juvederm®, and others.
      - Injected *into* the skin where they replace lost extracellular matrix volume.
        - » Sometimes used to provide volume that was never there in the first place!
      - Naturally reabsorbed over time and repeat treatment is necessary in order to maintain the results.

Applying HA topically does NOT increase the levels within the skin!

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## Principles of Cosmetic Dermatology

### Irregular Surface Texture

- Recognize that “dry skin” isn’t the only thing that causes scaling!
  - We must first rule out rashes (e.g., Seb Derm) and lesions (e.g., AKs, SKs, or even skin cancer) as the cause of irregular surface texture.
- *Otherwise...*
  - Irregular surface texture is the result of aged/damaged keratinocytes which aren’t “turning over” as quickly as they did when the patient was younger.
    - **Uniformity and normal moisture retention is lost.**

The result of imperfect “repair and replacement” over the years!

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## Principles of Cosmetic Dermatology

### Irregular Surface Texture

- Treatment
  - Prevention
    - UV avoidance and sunscreen use.
    - Avoidance of “oxidative stress” (e.g., *smoking*).
    - Use of antioxidants (esp. “topical”).

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## Principles of Cosmetic Dermatology

### Irregular Surface Texture

- Treatment
  - **Proper Moisturizing**
    - *Studies consistently show that the moisturizer base of products often provides just as much (if not more) benefit as the active ingredients themselves!*

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## Principles of Cosmetic Dermatology

### Irregular Surface Texture

- Topical Treatments
  - Normalization
    - The process of returning the keratinocyte growth and life cycle to a healthy (“normal”) pattern.
      - Keratinocytes make their way to the surface more rapidly so that the outer epidermis is instead covered with younger, healthier, and more uniform cells.
  - *Such products include...*
    - **Retinoids**
    - Alpha/Beta Hydroxy Acids

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### Irregular Surface Texture

- Procedures
  - Resurfacing
    - *“Lunchtime Peel”*
    - MICRODERMABRASION
    - MILD CHEMICAL PEELS & PDT
    - SUPERFICIAL LASER RESURFACING
    - MEDIUM/DEEP CHEMICAL PEELS
    - DEEP LASER RESURFACING
    - *Anesthesia required and takes weeks to recover!*

AGGRESSIVENESS/RESULTS  
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## Principles of Cosmetic Dermatology

### Irregular Surface Tone

- There are multiple sources of skin “color”.
  - Melanin
    - The most significant contributor.
  - Keratin
  - Vascularity
  - Other Factors

Treatment depends on the source of the color!

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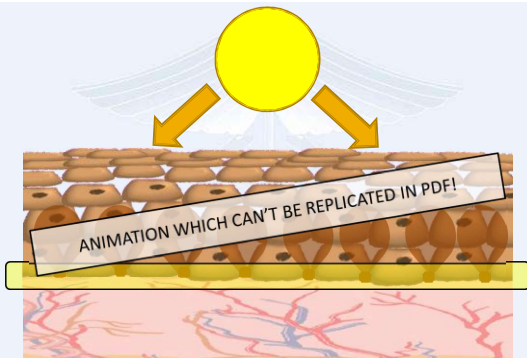
**Acanthosis Nigricans**  
(excess keratin within thickened epidermis makes skin darker)



**Seborrheic Keratosis**  
(dark color is primarily due to keratin)

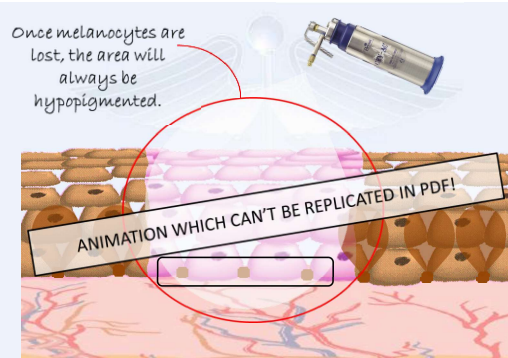


**Poikiloderma of Civatte**  
(network of telangiectasias and hypermelanosis)



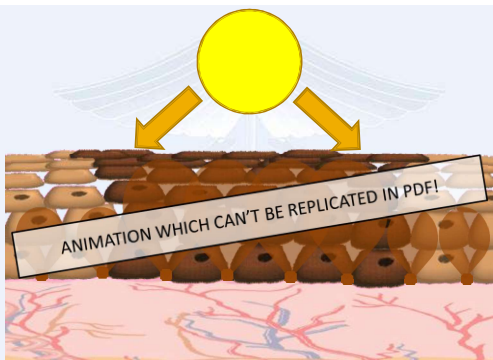
**Normal Melanin Distribution**

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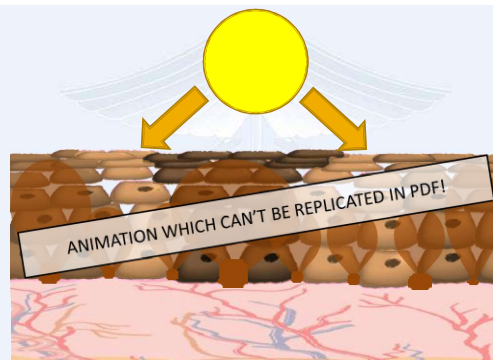
**Cryosurgery-Induced Hypopigmentation**

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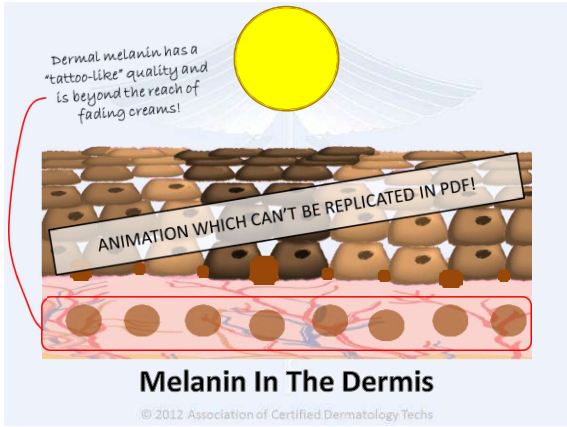
**Hyperpigmentation of Melasma**

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**Chronic Sun Damage**

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## Principles of Cosmetic Dermatology

### *Irregular Surface Tone*

- Treatment
  - Prevention
    - UV avoidance and sunscreen use.
    - Avoidance of "oxidative stress" (e.g., *smoking*).
    - Use of antioxidants (esp. "topical").
    - Retinoids help by keeping keratinocytes "moving along" in a timely manner (w/ less time for melanin uptake).

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## Principles of Cosmetic Dermatology

### *Irregular Surface Tone*

- Treatment
  - Hyperkeratosis
    - "Fading creams" will not work!
    - Instead, *keratolytics* (i.e., Urea, Glycolic Acid, etc.) or even cryosurgery (depending on the problem).

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## Principles of Cosmetic Dermatology

### *Irregular Surface Tone*

- Treatment
  - Vascular
    - Vascular Laser
    - Intense Pulsed Light (IPL)

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## Principles of Cosmetic Dermatology

### *Irregular Surface Tone*

- Treatment
  - Melanin (Epidermal)
    - Fading Creams (i.e., Hydroquinone and/or Kojic Acid)
    - Alpha and Beta Hydroxy Acids
    - Resurfacing (e.g. Microdermabrasion, Chemical Peels, etc.)
    - Laser (e.g., Q-switched Ruby, Alexandrite, Pulsed Dye, etc.)
    - IPL

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## Principles of Cosmetic Dermatology

### *Irregular Surface Tone*

- Treatment
  - Melanin (Dermal)
    - ~~Fading Creams (i.e., Hydroquinone and/or Kojic Acid)~~
    - ~~Alpha and Beta Hydroxy Acids~~
    - ~~Resurfacing (e.g. Microdermabrasion, Chemical Peels, etc.)~~
    - Laser (e.g., Q-switched Ruby, Alexandrite, Pulsed Dye, etc.)
    - IPL

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## Principles of Cosmetic Dermatology

*A few final tips...*

- Take advantage of treatments which provide the widest range of benefits.
  - Sunscreen
  - Retinoids
  - Antioxidants
- “It’s good to have an open mind, but just not so open that your brains fall out!”
  - *Always look for studies which **prove** the benefits of a given treatment rather than simply trusting what the sales rep says!*

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## Principles of Cosmetic Dermatology

*A few final tips...*

- Always try to find out **specifically** what the patient is trying to improve.
- Never promise unrealistic results!
  - **Recognize where the abilities of dermatology end and those of plastic surgery begin.**

**“RECIPE FOR DISGRUNTLED PATIENT”**

**ADD ONE COSMETIC SERVICES PATIENT TO A HANDFUL OF UNREALISTIC EXPECTATIONS**

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# CONCLUSION

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