REJUVENATION OF AGED SKIN WITH BROADBAND LIGHT

AP | CLASS

RESTORING GENE EXPRESSION IN AGED HUMAN SKIN

WHAT IS BBL?

- BBL: broad band light
- Non-coherent light waves **420-1400 nm.**
- Absorbed by pigment, hemoglobin, & water.

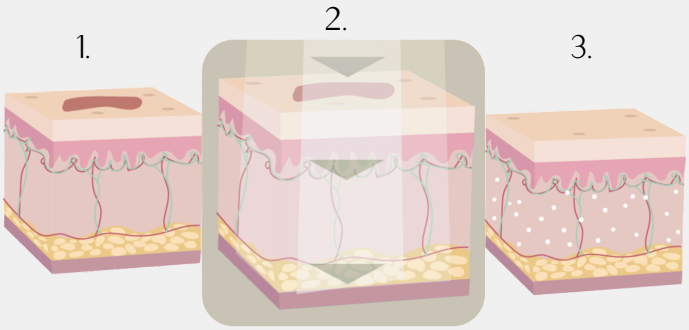
The Hypothesis:
Can aged skin cells be "rejuvenated" to resemble youthful skin cells?

P-POPULATION

METHODOLOGY

Sample Size

- 10 total women:
- Young group AGE < 30, n= 5
  - Little to no sun damage
- Older group AGE > 50, n =5
  - Moderate sun damage



1. Aged skin with fine lines and hyperpigmentation before BBL treatment.
2. Non-coherent light waves targeting chromophores and modifying genetic expression.
3. Skin is rejuvenated at the molecular level.

I-INTERVENTION

- Sciton Joule BBL using **515 nm or 560 nm**, single long pulse **10-20 ms duration**. Fluence 8-14 J, 2 or more passes over the forearm of the women > 50.
- 3 sessions, each spaced 4 weeks apart.

C-COMPARISON

- Analyzed biopsied skin pre-intervention to look at genetic difference between age groups.
- Biopsied the treated older womens' skin again 4 weeks after their last treatment.

O-OUTCOME

- Restores many molecular features of youthful skin.
- **Confirmed hypothesis:** downregulated over 1,000 genes within the skin that are responsible for aging.

KEY FINDINGS

Statistical Significance

- Fine wrinkles p=0.03
- Abnormal pigment p=0.02
- Global skin aging p=0.01

Molecular Rejuvenation

- 1,293 Rejuvenated genes identified
- Longevity genes activated

Altered Gene Expression

- ZMPSTE24
- IGF1R
- NF-kB pathway