

**SKIN TYPE &
TOPICAL PRODUCT
SELECTION**

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HOWARD'S BIAS

- CONSUMERS KNOW ALL
- OFTEN “WISER” (“CLEVER”) THAN SCIENTISTS

THE QUESTION

DOES “ONE SIZE”

(PRODUCT)

FIT ALL ?

PERSONALIZED MEDICINE:

PANACEA ?

EVIDENCE BASED !

- AZATHIOPRINE
- TRASTUZUMAB (HERCEPTIN)
(HER2 PROTEIN OVEREXPRESSION)

PERSONALIZED SKIN CARE ?

- DRY vs OILY SKIN
- MEN vs WOMEN
- INFANT
- ETHNIC

NOW LARGELY “SUBJECTIVE”

- “INTERNATIONAL” FORMULA
= FINANCIAL EFFICACY
- PERSONALIZED SKIN / HAIR /
NAIL CARE =
LESS “EFFICIENT”
- MASS vs
NICHE MARKETING
- THE CONSUMERS WILL WIN !

WHY INTEREST:

- ETHNICITY ?
- GENDER ?
- AGE ?
- REGIONAL VARIATION?
- “DRY” vs OILY ?

1) RELATION OF
EXPERIMENTAL ANIMALS
TO MAN ?

2) INDIVIDUAL VARIATION ?
* STRATUM CORNEUM

3) CLINICAL IMPLICATIONS

WHY

SKIN BIOENGINEERING ?

- LINEAR SOPHISTICATED METRICS !
- OBSERVING WHAT CAN'T BE SEEN
INVISIBLE DERMATOLOGY
(BLIND DERMATOLOGIST)
- NON - INVASIVE
- INTERNATIONALLY REPRODUCIBLE !
- INSIGHTFUL

TOOL BOX

- TRANSEPIDERMAL WATER LOSS (TEWL)
- CAPACITANCE / IMPEDENCE
- O₂ / CO₂ / ELECTROLYTE SENSORS
- TRIBOLOGY, ETC.

CRC PRESS

BIOENGINEERING OF SKIN SERIES

VOLUME 1 – 5

IRRITATION

AGE: INVERSELY PROPORTIONAL
(COUNTERINTUITIVE)

GENDER: WOMEN ↑ FREQUENCY IN
HAND ECZEMA
EPIDEMIOLOGY (EXPOSURE?)
EXPERIMENTAL DATA
EQUIVOCAL

(CONT DERM, 30: 257)

CUMULATIVE IRRITATION

S L S

OLDER < YOUNGER

(ACTA DERM, 78:279)

AGE & TRANSEPIDERMAL WATER LOSS ?

- INTUITIVE: SHOULD ↑
- DATA: ↓
- EXPLANATION: SURVIVAL OF THE FITTEST SKIN ?

SENSITIVE SKIN SYNDROME

- **COMPLEX BIOLOGY**
- **50% OF ALL POPULATION**

(SENSITIVE SKIN SYNDROME, INFORMA)

GENDER AND SKIN

PAGE 13

**TEXTBOOK OF
COSMETIC DERMATOLOGY**

TAYLOR & FRANCIS

ETHNIC SKIN / HAIR

< 50% CAUCASIAN

- **WESLEY & MAIBACH:
AMER J CLIN DERM: 4(12):843**
- **ETHNIC SKIN AND HAIR, INFORMA**

FILAGRIN & DRY SKIN

SCOTT, page 53

HANDBOOK OF
COSMETIC SCIENCE
TAYLOR & FRANCIS

STRATUM CORNEUM AND AGE

- KEY INTERFACE – SKIN CARE
- QUANTITATIVE *IN VIVO* & *VITRO* ASSAY “DREHER METHOD”
- HIGH VARIABILITY IN MAN

(RAWLINGS: AGING SKIN, SPRINGER)

“SPECIALIZED SKIN”

VULVA

(WOMEN’S HEALTH)

S L S

- LABIA MAJORA = FOREARM
- VULVA = NOT AGE RELATED

(J A A D, 23:648)

DETAILS

(ACTA GYN OBST, 273:195)

PERCUTANEOUS ABSORPTION & AGE

- INTUITIVE: ↑
- DATA: LIPOPHILICS = NO DIFFERENCE
 - TESTOSTERONE
 - ESTRADIOL
- HYDROPHILICS = ↓ ABSORPTION
 - HYDROCORTISONE
 - BENZOIC ACID
 - ASA
 - CAFFEINE

(J A A D, 31: 1015)

ALLERGIC CONTACT DERMATITIS

INDUCTION

- **D N C B – MEN MORE SUSCEPTIBLE**
- **NDMA – NO DIFFERENCE**
(CONT DERM NEWSLETTER, 6: 122)
- **CLONIDINE – WOMEN MORE
SUSCEPTIBLE**

(PACKAGE INSERT)

ALLERGIC CONTACT DERMATITIS

INDUCTION

ETHNICITY

- **CLONIDINE— CAUCASIANS MORE
SUSCEPTIBLE THAN
AFRICAN-AMERICAN**

(PACKAGE INSERT)

ALLERGIC CONTACT DERMATITIS

ELICITATION

- **MEN vs. WOMEN:**

**SAME EXCEPT WHEN
EXPOSURE DIFFERENCES**

(FREGERT: TRANS ST. JOHN HOSPITAL)

REGIONAL VARIATION ACUTE IRRITANT DERMATITIS

“S L S”

FACE > FOREARM

OLDER < YOUNGER

CHEEK & CHIN > NECK & FOREARM

(SKIN PHARM & PHYS, 19:177)

REGIONAL VARIATION IRRITANTS & ALLERGIES

UPPER BACK

2 x > THAN

LOWER BACK

(ACTA DERM VEN, 1955)

ALLERGIC CONTACT DERMATITIS

INDUCTION

INFANTS

D N C B – READILY SENSITIZED

13%	AGE	1 MONTH
63%	AGE	3 MONTHS
91%	AGE	8 – 9 MONTHS

(J CLIN LAB IMMUN, 3: 111)

THE FUTURE ?

EVIDENCE BASED

PERSONALIZED

SKIN CARE !

WHY SO SLOW ?

- “NIH” SYNDROME
- CRITICAL SCIENTIST MASS
(EXCEPT MOLECULAR MEDICINE)
- ESPECIALLY CUTANEOUS BIOLOGY
- “VIRTUAL” DEVELOPMENT CENTERS
- MAINTAINING LONG TERM FOCUS

TEAM EFFORT

- MARKETING
- FORMULATIONS
- DERMATOTOXICOLOGISTS
- PHYSICAL CHEMISTS
- CUTANEOUS BIOLOGISTS
- FULL TIME vs VIRTUAL

AND

CREDIBILITY !!!

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