

# Smoking and the Skin

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**Declaration: No Conflicts of Interest**

# The Skin-The Integumentary System

- The largest organ of the human body
- The Integumentary system..protects the body from outside and removes inside toxins: includes nails, hair, sweat and oil glands (and the lining of the mouth ...though technically part of the digestive system).

# The Skin

- Epidermis-top layer (mostly keratynocytes)
- Dermis-middle layer
- Hypodermis-innermost, thickest layer
  
- All layers are bound with collagen/elastin fibers
- Total turnover of skin varies from 15 days to 1 month (depending on age)

# Tobacco Effects

- Effects through external (cutaneous) and internal (systemic) exposure
- Differences between Nicotine effects and Tobacco smoke constituent effects
- Some skin cells have nAChr subtypes—  
 $\alpha 7$ nAChr and  $\alpha 3$ nAChr subtypes

# Signs on the Skin

- Colouring of hair
- Smokers' nails
- Smokers' palate
- Smokers' Melanosis
- Smokers' wrinkles

# Smokers' Hair



# Smokers' Nail



# Smokers' Palate





# Smoker's Melanosis





Smoking causes skin pigment → discolouration

# Facial Wrinkles

- Strong motivational stimulus to quit
- Good evidence supporting differences between smokers and non-smokers
- May also occur in passive smokers
- Exacerbated by sun exposure (sun protectors do not help)
- Daniell Scale of Wrinkling

## Daniell's 6-Point Wrinkle Scale

### Grade Skin Appearance

- I Essentially unwrinkled. Two or three shallow wrinkles usually less than 1½ cm in length may be present in each crow's-foot area.
- II Several wrinkles, each of which may be 3 cm long. The number of significant wrinkles on each side may be between two and six.
- III Several prominent wrinkles on each side, 3 to 4 cm long. Many smaller wrinkles may be present as well. Increased wrinkling may be present in the forehead skin, but little wrinkling in the cheek areas.
- IV Wrinkles extend from the crow's-foot area superiorly and inferiorly, usually 5 cm or more. If wrinkles are of unusual depth, they may be 4 cm long. Wrinkles extend over the cheek areas (zygomatic ridge). Men in this grade frequently exhibit prominent wrinkling of forehead and posterior nuchal region
- V Wrinkles extend from the crow's-foot area and are prominent over the cheeks and forehead.
- VI Profound wrinkling extending over most of the face.

# Dog's Bottom



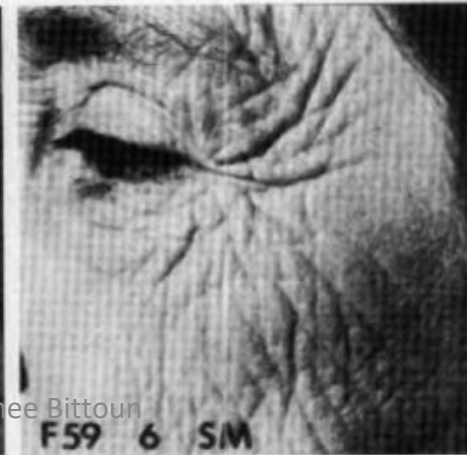
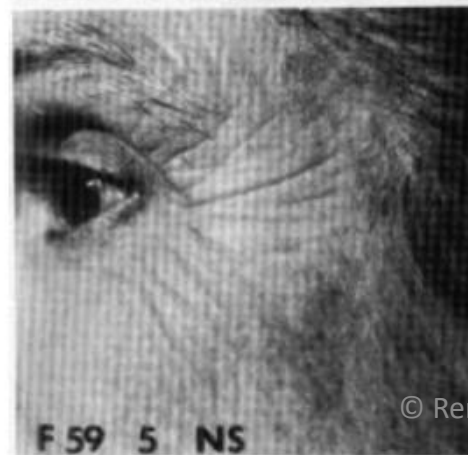


Twin 1



Twin 2





# Potential Causes of Wrinkles

- Free radicals reduces cellular defense and repair functions → damage and mutations of cells
- Ratios of collagen and elastin change: increase of elastin due to nicotinic subtypes
- Delayed DNA repair due to smoke



# Skin Diseases-strong associations

Dose relationships/positive cessation effects

- Acne Inversa-Smokers' Boils: boils under arms, genital areas
- Psoriasis
- Cutaneous lupus erythematosus
- Squamous cell cancers (cutaneous)
- Beurger's Disease
- Aberrant Wound Healing
- Pressure Ulcers

# Buerger's Disease



# Skin Cancers

- Inhibition of apoptosis due to nAChr subtypes induced by nicotine
- Blocking receptors → ↓ apoptosis

# Skin Diseases-weaker associations

- Acne Vulgaris
- Atopic dermatitis
- Basal Cell Cancers
- Melanoma

# No Association

- Pemphigoid
- Oral Lichen Planus

# Decreased incidence in Smokers

- Behcet' Disease
- Classic Kaposi Sarcoma
- Pemphigus Vulgaris
- Herpes Simplex
- Rosacea
- Chronic Aphthous Stomatitis

# Dermatological Use of Nicotine

- Behcet's Disease
- Beurger's Disease
- Erythema Nodosum
- Aphthous Stomatitis



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