Smoking and the Skin

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Declaration: No Conflicts of Interest

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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—α7nAChr and α3nAChr subtypes
Signs on the Skin

- Colouring of hair
- Smokers’ nails
- Smokers’ palate
- Smokers’ Melanosis
- Smokers’ wrinkles
Smokers’ Hair
Smokers’ Palate

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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 \(1\frac{1}{2}\) 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 inferiorty, 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
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

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Skin Diseases-strong associations

Dose relationships/positive cessation effects

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

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Buerger’s Disease
Skin Cancers

• Inhibition of apoptosis due to nAChr subtypes induced by nicotine

• Blocking receptors $\rightarrow$ ↓ 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 Karposi 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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