SMOKING AND THE SKIN

One of the most obvious effects of smoking is on the appearance of the skin. Skin that is damaged by tobacco smoke typically has a greyish, wasted appearance\(^1\), and can be affected in several ways. The more a person smokes, the greater the risk of premature wrinkling. One explanation for this is that smoking increases the production of an enzyme that breaks down collagen in the skin, causing it to sag.\(^2\) Collagen is the main structural protein of the skin and is essential for the skin’s elasticity.

Smokers in their 40s often have as many facial wrinkles as non-smokers in their 60s.\(^3\) Skin damage caused by smoking may not be immediately visible to the naked eye, but is still happening, and can start to be detected in one’s 20s or 30s. Over time, while collagen is reduced, squinting in response to the irritating nature of tobacco smoke and the puckering of the mouth when drawing on a cigarette can cause wrinkling around the eyes (known as Crow’s feet) and mouth.\(^4\)

Tobacco smoke dries the surface of the skin, further contributing to wrinkling.\(^5\) Smoking also reduces the amount of blood flowing to the skin by constricting blood vessels near the skin’s surface, depleting the skin of oxygen and essential nutrients transported in blood.\(^6\)

Together, these changes add up to what some doctors describe clinically as a “smoker’s face”.\(^7\)

SMOKING AND WOUND HEALING

Smoking impairs wound healing, delaying recovery and increasing the risk of complications.\(^8\)\(^9\) The problems that smoking can cause are so serious that some plastic surgeons have even declined to perform cosmetic surgeries on patients who refused to quit smoking.\(^10\) The Royal College of Anaesthetists advises that quitting smoking any time prior to surgery is beneficial.\(^11\)

SMOKING AND PSORIASIS

Psoriasis is a chronic inflammatory skin condition which, while not life-threatening, can be extremely uncomfortable and disfiguring. Smokers have a two-to-threefold higher risk of developing psoriasis than non-smokers, with women being at the greatest risk.\(^12\)\(^13\)

Smoking also increases the risk of palmoplantar pustulosis (PPP), an incurable skin condition involving extreme inflammation of the hands and feet, which can occur on its own or in conjunction with psoriasis.\(^14\)\(^15\) In fact, 95% of patients with PPP are smokers, most of whom are heavy smokers.\(^14\)

SMOKING AND WOUND HEALING

Although stopping smoking leads to considerable improvements to health, it is often associated with weight gain.\(^16\) This is a proven effect and the average weight gain is around 7-9 kg.\(^17\) In one study 42% of quitters gained over 10 kg (22 lbs) where subjects were tracked for 8 years.\(^18\) It is vital to note that although significant weight gain can lead to other serious health
problems, the health effects of the modest weight gain many quitters experience is vastly outweighed by the health benefits from stopping.\textsuperscript{19,20}

There are several risk factors which are associated with an increased risk of weight gain after quitting smoking. Being young, of lower socio-economic status and a heavy smoker are significant predictors of greater weight gain.\textsuperscript{21} Obese smokers tend to gain the most weight after quitting smoking\textsuperscript{18}. Peri and postmenopausal women are also more likely to gain weight after quitting.\textsuperscript{22}

Although the reasons for post-cessation weight gain are not fully understood, some have attributed it to the fact that smoking increases the body’s metabolic rate (the rate at which calories are burned up) by about 10%. \textsuperscript{23,24} The effect of nicotine on metabolic rate may also explain why smokers tend to weigh less than non-smokers. \textsuperscript{25} Another theory is that smoking alters the body-weight set point (the weight towards which a person tends to return despite attempts to gain or lose weight). It has been suggested that nicotine may artificially lower a person’s body weight set point, so that the weight gained on stopping reflects a return to the body’s natural weight set point.\textsuperscript{26}

Nicotine also increases central nervous system levels of norepinephrine, dopamine and/or serotonin, which can suppress appetite and facilitate weight loss.\textsuperscript{24}

Although smoking can facilitate weight loss, many smokers are still overweight or obese. The combination of excess weight and smoking has been shown to accelerate the ageing process of the body. One study showed that being both overweight and a smoker can age a person by ten years or more.\textsuperscript{27}

Once again, it must be stressed that the benefits from quitting smoking massively outweigh the increased risk of weight gain that can follow a successful quit attempt.

\section*{BODY SHAPE}

Smoking can affect body shape, changing fat distribution in a way that is associated with disease. Smokers store body fat in an abnormal distribution because smoking can interfere with the endocrine system (the glands in your body which produce hormones).\textsuperscript{28}

In smokers, more fat is stored around the waist and upper torso and less around the hips. This means smokers are more likely to have a higher waist-to-hip ratio (WHR) than non-smoker.\textsuperscript{29,30,31} A high WHR is associated with a much higher risk of developing diabetes,\textsuperscript{32} insulin resistance,\textsuperscript{24} heart disease,\textsuperscript{33,34} stroke,\textsuperscript{35} metabolic syndrome,\textsuperscript{36} gallbladder problems,\textsuperscript{39} and breast cancer.\textsuperscript{40} Studies have shown that the waist to hip ratio increases with the number of cigarettes smoked per day.\textsuperscript{41,42}

\section*{EFFECTS ON THE MOUTH}

Halitosis (bad breath) along with stained teeth and gums are a well-known side effect of smoking.\textsuperscript{43} Tobacco use increases the risk of periodontitis (inflammation of the gums),\textsuperscript{44} which results in swollen gums and bad breath, and can cause teeth to fall out.\textsuperscript{45} Smoking could be responsible for up to 40% of chronic periodontitis cases among adults and smokers tend to respond more poorly to treatment.\textsuperscript{46}

Smoking can also impact tooth implants. Smoking increases the risk of failure of tooth implants and post-operative complications.\textsuperscript{47} The more a person smokes, the more likely the implant is to fail.\textsuperscript{48} One study in a recent review article found that “approximately one in every three implant failures occurred in smokers, and one in five patients with early failures smoked over 10 cigarettes per day, while only 12.3% of patients without failures were smokers.”\textsuperscript{49}

Other common non-malignant oral conditions in
smokers include the darkening of gum pigmentation (“smoker’s melanosis”); leukoplakia of the tongue (“smoker’s tongue”), characterized by white spots or patches on the tongue or vulva; and a grey-white palate with red papules (bumps) a symptom of inflamed salivary glands (“smoker’s palate”/nicotine stomatitis). 50,45

OTHER EFFECTS

Complexion: Smoking can make people more prone to acne and delay the healing of blemishes. Women have been found to have more frequent and severe acne, which worsens the more they smoke.51 Smoking is also considered a trigger for acne inversa, a chronic inflammatory skin disease that can be disfiguring.52

Researchers have also found a link between smoking and accelerated hair loss and greying.53 Smoking can damage eye blood vessels creating a bloodshot appearance in the eyes while causing irritation.64 Prolonged smoking causes noticeable discolouration of the fingers and fingernails on the hand used to hold cigarettes.56

In extreme cases, cancer of the lip, tongue, gums, etc. can cause severe disfiguration. These topics are covered extensively in the ASH research report Tobacco and Oral Health.

SMOKING CESSATION AND APPEARANCE

One international study found that 13.3% of men and 21% of women acknowledged that the effect of smoking on their appearance was one of the factors that motivated them to quit.58 In a UK study, youth and young adults aged 16-24 also took their appearance into consideration in making the decision to quit smoking. The effect of this factor varied by gender, with young women more worried about their skin.57

Another study from the UK measured the reactions of women aged 18-34 to facial age progression, using software which could produce artificial aging in digital images. Respondents were shocked at the possible future appearance of their skin, if they continued to smoke. The study concluded that using age-appearance morphing techniques to personalise the experience for female smokers significantly increased their motivation to quit smoking.58

Smoking can negatively interfere with sleep patterns which in turn can have affects on the skin. According to a study carried out by CHEST, there is a direct link between smoking and sleep Apnea (when a person’s breathing is interrupted during sleep).59

Cigarette smokers are four times as likely as non-smokers to report feeling unrested after a night’s sleep.59 This can result in sleep deprivation and sleep fragmentation.60 Sleep deprivation can affect the physical look of the eyes, mouth, and skin.61 For instance, with sleep deprivation, blood flow to the skin is reduced, and according to a study based on 25 participants, faces appeared paler after not sleeping.62 Facial cues from sleep deprivation have also been connected to various social consequences, effecting communication and social interaction.61 62 These factors can be highlighted to promote smoking cessation.

CESSATION ADVICE

Health care professionals should consider using appearance-based arguments to appeal to smokers in motivating them to quit on an evidence-based basis. Preliminary studies show that smoking cessation interventions related to appearance may have a positive impact on quitting.63 64 Although NICE guidance65 does not specifically mention using the negative effects on a smoker’s appearance as motivation to quit, the U.S. Clinical Practice Guideline states: “The clinician should ask the patient to identify potential benefits of stopping tobacco use. The clinician may suggest and highlight those that seem most relevant to the patient. Examples of rewards follow:

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[Your] home, car, clothing, breath will smell better. [You will have] improved appearance, including reduced wrinkling/aging of skin and whiter teeth."

The Guideline also provides suggestions for what to say to smokers about the likelihood of post-cessation weight gain, including which pharmacological supports have been shown to delay weight gain (bupropion, nicotine gum and nicotine lozenges).66

REFERENCES


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