

# Approaches to a Prophylaxis of Skin Aging\*

MARGOT IPPEN, M.D., and HELLMUT IPPEN, M.D.†

---

**Synopsis**—It is shown that smoking has a deleterious effect on skin condition and that this effect can be differentiated from that of damage by sunlight. Smoker's skin is identified as skin which suffers from loss of "turgor" and shows signs of flabbiness; in addition, the color of the smoker's skin is pale, with a grayish hue. Dermatological examination of 224 women up to now showed no strong correlation between their smoking habits and the appearance of their skin, as defined above. By contrast, smoking seems to have only a very minor effect on the skin of male smokers.

The problem of aging of the skin is an especially important area in the field of cosmetics. Numerous methods for combating and covering up the aged skin are known. On the other hand, little attention has been directed until now toward investigation of the causal factors and the basic origin of skin aging—especially with reference to aging of the face.

When the skin becomes slack and loose, "crow's feet" and other small wrinkles appear, and the skin becomes thinner. These developments are generally regarded as a physiological process which often can be retarded but never decisively stopped by the use of appropriate cosmetics. Examination of the skin qualities of women of equal age demonstrates that the differences between the skin qualities increase with the age of the women. Such differences cannot fully account for individual or constitutional variations. Furthermore, if one examines

---

\* This communication is a condensation of a paper presented before the Third Congress of the International Federation of Societies of Cosmetic Chemists on June 25, 1964, New York City.

† Am Massenberger Kamp 23, 4000 Düsseldorf-Holthausen, Germany.

and compares the skin of different parts of the body of the same person, one finds in many cases great differences between the degree of aging from area to area, e.g., between the skin of the face and that of the back.

Such observations stimulated the authors to examine the state of the facial skin of women systematically and to determine possible causes which may have accelerated aging of the skin.

From these investigations a remarkable parallelism between the following two factors was found:

1. Exposure to sunlight
2. Cigarette consumption

There is a considerable amount of data concerning the damaging effects of long exposure to sunlight on the skin. In contrast, the authors have found no reference on the role of tobacco smoking on aging of the skin. In order to establish the relationship between smoking and skin aging more conclusively, these examinations were extended, and the following facts were determined.

1. The longer and the more a woman has smoked, the more frequently poorer skin conditions are observed. Certain features of this damage could be differentiated from the sunlight-damaged skin.

2. More specifically, the skin changes resulting from long years of smoking manifest themselves mainly through a loss of "turgor" and reduced circulation in the deeper layers of the skin. On the other hand, the light-induced skin changes are characterized by a degeneration of the superficial connective tissue and an atrophy of the epidermis.

3. Correspondingly, the skin of the smokers is pale, with a grayish hue, and without local variations of the pigmentation. Also prevalent are wrinkles and folds, which sometimes cover the whole face but are especially noticeable on the cheeks. Between these folds and wrinkles the skin is abnormally thick. It is probable that the reduction of turgor plays an important role in this development.

4. In extreme cases this loss of turgor results in a slackness and flabbiness of the skin of the cheeks with women who had not yet reached the age of forty.

The authors have examined 224 women, aged 35 to 84 years. At first the skin of the face and neck was examined. From these dermatological studies conclusions were drawn concerning the patients' smoking habits. Subsequently, the women were asked about their cigarette smoking, and the following relations were found: In 93 (41.5%) the characteristics of "cigarette skin" were described; in 131 (58.5%)

the skin was not characterized as such. Of the 131 women without "cigarette skin," 113 (86%) have never smoked whereas only 18 (14%) of them have smoked. The group of 93 women with cigarette skin included 66 (71%) smokers and 27 (29%) non-smokers. In other words, 66 (79%) of the 84 smokers were recognized from their skin appearance, and 113 (80%) out of the 140 non-smokers had no signs of cigarette skin. In the case of the 27 non-smokers with "smoker's skin" one must consider constitutional factors separating this group of mostly elderly ladies from the real smokers. In contrast, most of the 18 smokers without smoker's skin had not yet reached the age of fifty. Therefore, their skin changes seem to have not progressed far enough to be noticed.

The main differences between cigarette skin and light-damaged skin, which can be seen occasionally on the face after long and intensive application of sunlight, are in color and firmness. This follows from the different pathogenesis of these two types of skin damage. The primary reaction following chronic sunlight damage takes place in the blood-vessels adjacent to the epidermis. As a result, the parts of the connective tissue lying just under the epidermis degenerate, and finally the epidermis itself degenerates. What follows is a certain rigidity, sometimes intensified by a superficial elastoidosis. Deeper wrinkles are seldom found. Especially noticeable, however, is the color, which is irregularly brownish due to hyperpigmentation, but also has a reddish hue, due to the intact circulation in the deeper layers of the skin.

In contrast to this, nicotine seems to have a much stronger effect upon the deeper blood vessels of the cutis. The constriction of vessels by nicotine is evident in the pale gray color of the face, caused by reduced circulation and followed by a degeneration of the connective tissue in the deeper layers of the cutis. This degeneration results in deep wrinkles and loss of turgor. Since the relatively unaffected epidermis does not atrophy, it is easier to discern the changes in skin relief caused by the damage in the deeper layers of the cutis.

These investigations have been limited thus far to women. It would appear that smoking has less or hardly any effect on the skin of men. With women the investigations should be limited to those between the ages of 35 and 70. Women over 70, who have never smoked, are affected by other processes of degeneration, which result in a very similar morphological picture. These observations show that consumption of tobacco by younger women can produce the appearance of "senile" skin. Hardly any difference can be seen between the skin of a

forty year old smoker and a seventy year old non-smoker. This is even more apparent when neither subject has been extensively exposed to sunlight.

The premature aging of women's facial skin is mainly the consequence of three basic factors:

1. The physiological process of aging of the entire integument, characterized by the folds resulting from habitual facial movements such as smiling and frowning.

2. Those chronic changes on the outermost skin layers which are caused by long exposure to sunlight. Such changes, as a rule, are not found on the skin of the rest of the body except on the neck, forearms, and hands.

3. Combined with the first two factors are those changes in the circulation and the quality of the deeper connective tissue which follow long years of smoking and which are mainly noticeable on the face and on the neck.