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SMOKING AND FOOD PREFERENCES X

BY

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It was of interest to determine whether the differences in taste perception that exist between smokers and non-smokers (Krut, Perrin and Bronte-Stewart, 1961) had any bearing on their food preferences. There is a belief that smokers do prefer more savoury foods, and that, with abstinence from smoking, sweeter foods are preferred, and this possibly accounts for the subsequent increase in weight that has been reported (Brožek and Keys, 1957). As these impressions are without any factual foundation, this study was planned to obtain data in this regard.

Material and Methods

The subjects of this study were sampled from two sources—a group of 80 second-year medical students and a group of 76 males and females from an insurance firm whose ages ranged from 17 years to 50 years.

Firstly, in a printed questionnaire the subjects, who consisted of 79 smokers and 77 non-smokers, were asked to indicate their preferences for salty, spiced, sour, or bland foods, examples of each kind being given.

Secondly, in conjunction with the questionnaire, a diet history was taken by the system of recall, paying particular attention to the fat content of the diet derived from common foods: 63 smokers and 62 non-smokers were questioned.

Finally, the male smokers (all smoking more than 20 cigarettes/day) and non-smokers, whose ages matched, were selected from the insurance personnel tested for taste sensitivity. Thus sex, age, and socio-economic background were matched so that the variable factors were limited so far as possible. From these men, two small groups, A and B, consisting of heavy smokers and non-smokers, were selected with the use of random number tables (Fisher and Yates, 1957) for a more detailed dietary investigation.

Nine smokers and eight non-smokers formed group A and eleven smokers and nine non-smokers group B. A detailed description of the daily diet was obtained, paying attention not only to the main meals but also to snacks, the variations during the week and week-ends, and the methods used in cooking. The amounts eaten were gauged on average portions, but if there were obvious deviations these were taken into account. The fat content of various foods was obtained from standard food tables (Fox and Golberg, 1944; McCance and Widdowson, 1946).

Results

Subjective Taste Preferences.—Of the 79 smokers who completed the questionnaire on their preferences for salty, spiced, sour, and bland foods, 36 said they preferred salty foods, 50 spiced food, 24 showed preference for sour food, while 40 preferred bland food. Of the 77 non-smokers, 29 preferred salty food, 39 spiced, 30 sour, and 61 bland food. The differences were significant for bland food ($P < 0.001$), but for salty and spiced food combined ($0.1 > P > 0.05$) the result was not quite significant.

Semi-quantitative Dietary Survey.—The total fat assessed from common fatty foods came to a mean of 577 g./week for smokers and 543 g./week for non-smokers—that is, smokers ate a slightly more fatty diet than non-smokers. However, this brief history did not take into account all the fat eaten in the diet, and the results were not significant.

Detailed Dietary Surveys

In group A, smokers consumed 1,215 g. fat/week as compared with 1,094 g. fat/week for non-smokers, but this was not statistically significant ($0.5 > P > 0.4$). On more detailed examination, however, marked differences existed in the types of foods that constituted the overall fat intake in these two groups. Heavy smokers consumed significantly more meat and more eggs than did non-smokers, but non-smokers consumed somewhat more fat in the form of cakes, sweets, and chocolate.

Almost the same results were shown in group B—that is, the total fat was 1,155 g./week for smokers and 931 g./week for non-smokers. Similarly, heavy smokers consumed significantly more meat and more eggs than did non-smokers, but the intake of fat from other foods was again not very different (Fig. 1).

For the purpose of statistical analysis, group A and group B were combined and the results shown as a mean. The differences between smokers and non-smokers for meat and eggs were significant for these samples ($0.02 > P > 0.01$ and $0.05 > P > 0.02$ respectively). No statistically significant difference was seen in the

other food groups, nor in the difference between total fats—that is, 1,176 g. fat/week for smokers compared with 1,029 g. fat/week for non-smokers ($0.1 > P > 0.05$).

The percentage of fat derived from cheese, butter, milk, and cream combined remains almost constant for smokers and non-smokers. Cereals are also eaten in almost the same quantities by these two groups. Meat and eggs, which are savoury foods and are often cooked with additional fat, are preferred by the smoker, whereas sweet foods are preferred by the non-smoker (Fig. 2).

FIG. 1.—Relative fat intake expressed as a percentage (taking non-smokers as 100% in each case), showing comparative results from group A and group B in the different food groups.

FIG. 2.—Percentage distribution of weekly dietary fat. A greater percentage of fat in the food of smokers compared with non-smokers is in the form of savoury fats. Note the segment taken up by dairy fats is similar in the two groups, but that from sweet food fats is greater in the non-smokers.

Discussion

By their very nature, dietary surveys cannot provide absolute values, and with regard to food preferences one has to rely on subjective information. For this reason, so far as was possible, the information was collected blindly in that the individual recording the dietary data was unaware whether a smoker or a non-smoker was being questioned.

The problem was tackled using three different approaches. Firstly, the subjects indicated their preference for certain foods with distinctive tastes. Next an assessment of the fat intake from the more common foods in their daily diet was made. Finally, two separate random samples, drawn on two separate occasions, were subjected to a detailed dietary analysis.

Each approach directs one's attention to differences in food preferences between smokers and non-smokers. The results indicate that smokers on the average seek gustatory satisfaction in consuming foods that have had their flavours and palatability enhanced by spices, herbs, vinegar, condiments, and fat. The differences in total fat intake, although not great, were consistent and of the same order in each instance. This was also seen in

the 1955 survey in the same area (Bronte-Stewart, 1956). However, the differences in food preferences, particularly with regard to fatty foods between smokers and non-smokers, is seen to best advantage not when one takes food consumption as a whole but when one pays attention to individual food items. It was because of this that the analysis of fat intake from the different food items was repeated in a second random sample (group B), the results of which confirmed the findings in group A—namely, that a significant difference exists between smokers and non-smokers with regard to consumption of meat and eggs.

In controlled feeding studies (Bronte-Stewart *et al.*, 1956) it was shown that meat and eggs elevate the serum cholesterol levels more rapidly and to a greater extent than most other fats.

Possibly this could account for the differences in serum cholesterol levels that have been reported in surveys on smokers and non-smokers (Gofman *et al.*, 1955; Thomas, 1958; Karvonen *et al.*, 1959; Bronte-Stewart, 1961).

Summary

The 156 individuals who were subjected to the tasting tests were questioned about their food preferences.

1. Whether they preferred salty, spiced, sour, or bland food. It was shown that non-smokers preferred bland food, and a fairly high proportion of smokers preferred salty and spiced food.

2. In addition, the fat content of their diet was analysed, and it was shown that smokers consumed more fat than non-smokers, but the differences were small.

3. On more detailed examination marked differences existed in the types of foods that constituted the overall fat intake in two independent groups. Heavy smokers consumed significantly more meat and eggs than did non-smokers. Non-smokers consumed more fat in the form of cakes, sweets, and chocolate.

It was concluded that in these samples cigarette smoking affected food preferences.

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