Symposium on

PREVENTION OF OBESITY*

SUMMARY OF REPORTS

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IT is a great pleasure for me to participate in this program because I am firmly convinced that, from a public health viewpoint, it is the prevention of obesity to which we should give our attention, rather than continuing to concentrate on the treatment of obesity, as most of us have in recent years.

As with any disease or public health problem, it is always better to prevent it than to have to deal with it after it has developed. So this meeting to deal with the prevention of obesity interests me greatly and is a subject to which we need to give much more attention. One of the reasons it has not been given more attention is that we have not had a sufficient understanding of the problem. This has been an outstanding Conference. Some interesting and important data have been presented, different viewpoints have been expounded, and from the new material submitted here I believe we can lay the foundations for a health program in the prevention of obesity.

*Dr. Powdermaker** gave an interesting summary of the anthropological approach to the problem. She pointed out the attitudes toward food in primitive societies where food gathering is one of the important activities of life, in which most of the primitive civilization is engaged and where food shortages are of the utmost importance, in contrast to the plenty of modern society in the Western World with its decrease in physical activity, and in the midst of which we are becoming more conscious of obesity. This consciousness of obesity goes along with an

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**See *Symposium on Prevention of Obesity, Part I.* Powdermaker, H. An anthropological approach to the problem of obesity, *Bull. N. Y. Acad. Med.* 36:286-95, May, 1960.

overturning of everything that overeating has stood for in the past. We have a change in our standards of beauty but not in our standards of man. It was not so very long ago that the cartoonists' emblem of success and prosperity was the man with a big gold watch chain hung across a large paunch. The destruction of this emblem and all it means is certainly a psychological factor of some consideration.

Dr. Powdermaker pointed out the social importance of our dinner parties and the changes that are going on as they reflect the individual style and taste in cooking, and how we tend more and more to become gourmets. She did not mention it, but as she was talking, I thought of the current fad for outdoor cooking, which is a reflection of individual style. In the midst of all this, parents are still the givers of food to children. Good eating still produces a euphoria and the eating of food still remains a symbol of love, affection and friendliness. So that we have an increasing opportunity to overeat and become obese while our knowledge of food and obesity introduces conflicting ideas. It is clear that problems in social anthropology are important factors in obesity. It is not clear just exactly what we are going to do about them. We all know that the early establishment of food habits, good or bad, is a very basic thing that is difficult to change, but we must have a better understanding of the proper way in which to change food habits.

*Mr. Herbert Marks** presented and discussed the questions: "Why should we be concerned about obesity? What are the health problems of obesity?" He told us of the importance of obesity in relation to health. He stressed particularly the relationship to heart disease, mentioning the fact that a white man of age 25 has 16 out of 100 chances of dying of heart disease while the chances are 30 in 100 for all other diseases.

He indicated that the figures on mortality are more satisfactory than those on morbidity for evaluating the effects of obesity on health, and he cited the extensive life insurance data which indicate that even a moderate amount of overweight is associated with an increased mortality, which increases with the degree of overweight. He made the interesting point that a study of currently available data now indicates that the previously assumed advantage of moderate overweight in young persons is no longer true. When I was a medical student, I was taught

* See *Symposium on Prevention of Obesity, Part I.* Marks, H. H. Influence of obesity on morbidity and mortality, *Bull. N. Y. Acad. Med. 36*:296-312, May, 1960.

that it was advantageous for adolescents to be a little overweight, that it was better to be overweight when you were young, and underweight when you were older. This is no longer true because, when the reduction in mortality from tuberculosis and pneumonia is taken into account, even this apparent advantage of slight overweight in the young disappears. In the overweight mortality is significantly elevated at all ages, compared with optimal weight mortality, with ratios up to age 50 on the order of 200 per cent.

In relation to specific diseases, he mentioned how important obesity is in diabetes, where the excess mortality is about four times that of standard risks. He paid special attention to the studies that show that there is a relation between overweight and elevated blood pressure, angina pectoris, ischemic heart disease, liver disorders, gall bladder disease, osteoarthritis, and even malignancy of the endometrium and the biliary tract, although there is no apparent relation to other malignant conditions.

He then turned to the interesting question of whether, from a health viewpoint, if one is already obese, it would pay to reduce. In answering this question he mentioned the studies that show that elevated blood pressure falls when weight is reduced, and that mortality statistics improve. So it *is* desirable to achieve weight reduction because it may be followed by improved health in the overweight individual with serious disorders.

Therefore, I think we can summarize Mr. Marks' viewpoint by saying that his remarks emphasized the great importance of the *prevention* of obesity in order to avoid increased health hazards.

*Dr. Hartroft** discussed the pathology of obesity, and pointed out the various *pathological* obese states, which have not thrown much light on the normal mechanism of storage of fat. He observed that at one time obesity was considered a sign of health, vigor, beauty, respectability, wealth, and trustworthiness. These words are of considerable importance in a real attack on the prevention of obesity.

He stressed that adipose tissue is a normal special organ with the specific function of storing fat, and it is only the excessive storage of fat that becomes a problem. He mentioned the fusion of the adipose tissue cells, and pointed out that in fatty degeneration, the fat in the cells is

* See *Symposium on Prevention of Obesity, Part I.* Hartroft, W. S. The pathology of obesity, *Bull. N. Y. Acad. Med. 36*:313-22, May, 1960.

not necessarily related to obesity. This kind of fatty degeneration may occur in starvation. He told us about the experimental production of obesity in animals by various methods such as insulin injection, or hypothalamic damage. He pointed out that in this type of fatty disease or abnormality the fatty liver of obesity is different from that caused by a lipotropic deficiency, such as choline, while the fat in the liver in starvation and in diabetic animals resembles that seen in obesity.

He presented us with some autopsy data that might superficially appear to be at variance with some of the conclusions that Mr. Marks made. Dr. Hartroft's data fail to show an association between hypertension, myocardial infarction and obesity in non-diabetic adults.

I do not necessarily see any conflict between Dr. Hartroft's findings at autopsy and Mr. Marks' findings based on life insurance data. I have no doubt that they are both correct. They are dealing with widely differing situations, differing types of data, differing material, and there is probably some satisfactory explanation to reconcile both of these findings. Dr. Hartroft did agree that extreme obesity is undesirable from the standpoint of public health and preventive medicine—so there is no difference of opinion on this point.

*Dr. Mayer** presented an extremely interesting and stimulating report. He went to the heart of the problem immediately by asking the questions, "Why do people over-eat?" and "Why do some people take in more energy than they expend?" And he mentioned that, because of over-simplification of the problem and a superficial viewpoint, there has of late been a tendency to transfer obesity from the category of a serious medical problem to that of being a moral problem.** We all agree, I think, with Dr. Mayer's viewpoint, that it is the interaction of heredity and environment that makes us what we are.

Dr. Mayer showed that overeating is due to the interaction of factors between the host on one hand, that is, genetic factors, and the agent, such as trauma or hormones or chemicals; or, on the other hand, environment as reflected by exercise, the nature of the diet and social and cultural factors. He pointed out the several types of genetic obesity that are known to occur in experimental animals and spoke at length about hereditary hyperglycemic obesity in experimental animals.

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* See *Symposium on Prevention of Obesity, Part I.* Mayer, J. Genetic factors in obesity, *Bull. N. Y. Acad. Med. 36*:323-43, May, 1960.

**In the sense that excessive food intake is comparable with alcoholism as a moral and social problem.—Ed.

I was particularly interested in his remarks about children and the differentiation between metabolic obesity and regulatory obesity—the establishment of a method of distinguishing between these two types would be exceedingly important and useful.

His conclusions were: 1) we must understand normal physiology better; 2) in order to treat obesity we must understand the primary abnormality; and 3) we should not fear genetic factors.

I certainly agree with all of the above-mentioned points. There are many hereditary conditions influenced by genetic factors which have been successfully attacked in the past. It would be a mistake to ignore genetic factors in obesity. It is true that from a long-range viewpoint most of our efforts at weight-control have been failures. Obese people can and do reduce temporarily, but studies over the years indicate that they usually revert to their previous obese state.

Dr. Buskirk talked about the basis for calculating energy needs. He mentioned our energy needs, our energy intake, and the measurement of energy expenditure. He spoke of the modern research equipment that is being used to study metabolism, including miniaturization and telemetering, which will make these measurements more precise. He pointed out that the caloric cost of living becomes less, the greater the use of power in many occupations,—and changes in the way we spend our day have their effects on energy expenditure.

He raised the question of our daily variation in energy expenditure, observing that it fluctuated greatly, and he made quite a point of week-end activities. I was impressed with the great decrease in calorie expenditure in a man who spent his week-end lying down, compared with an increase up to three times with vigorous exercisers.

He indicated the daily heat production on equi-caloric diets of different protein content, showing that there was no difference in one pair of subjects and a moderate increase with high protein in another pair, indicating that the specific dynamic action depends more on the total diet than on just the protein content. He spoke about the caloric cost of transporting the body around, and mentioned the gain in weight in man as he becomes older, largely due to fat deposits. He pointed out the variation in the calorie expenditures in different occupations, varying from 2,800 a day for clerks to over 5,000 a day for a man dog-sledging.

As Dr. Buskirk indicated, we need better information about what we are actually doing, and the caloric cost involved. I was impressed

with the difficulties of being precise in this type of measurement on an individual. Fortunately, from a health viewpoint, we don't have to be this precise in order to tackle the problem of the prevention of obesity.

The kind of information that Dr. Buskirk and his group are collecting is essential for a complete understanding of the problem. These studies will yield us a great deal of very valuable information, but meanwhile we can go ahead with our program of prevention of obesity while they are obtaining this additional information.

In his discussion of the prophylaxis of obesity, *Dr. Pollack* pointed out that we gain weight as we get older as a result of a continuing intake of calories slightly in excess of those that we expend, due to our decreasing activity, and without an increased intake. This was one of the important points in his presentation. We establish certain patterns of eating when we are young adults; or in adolescence, we become accustomed to a certain food intake. We don't realize that we should reduce our food intake as we get older. We continue the same caloric intake year after year, while our activity decreases and our weight gradually increases, because our basal metabolic requirements per unit of body weight continue to decrease with age.

We noticed from his data that just a tiny decrease of 15 calories a day in a hypothetical man made a considerable difference in weight with advancing age, and resulted in a reduction in weight from 175 lbs. to about 160 lbs. between the ages of 40 and 60 years.

Dr. Pollack mentioned the basic point that there are only two ways to prevent obesity. One is to decrease the food intake and the other is to increase the caloric expenditure. It's the little things that count, and prevention means equilibrium. It is neither necessary to take a seriously deficient diet, nor to restrict oneself very severely nor to use the deficient diet needed for treatment. *In prevention,* it is just equilibrium between food and work. This is very simple to do and does not require any serious restriction in food.

Dr. Pollack also pointed out the basic need for watching the scale over a long period of time. He noted, too, how rapid changes in water balance disturb people. Body weight must be watched week after week. It is the slow steady gain that is serious but which requires only a slight adjustment in calories for correction.

Finally, *Miss Schur* covered a number of very fundamental points in her paper—on teaching the individual about diet. The prevention of

obesity is largely a problem in health education, and she pointed out remarkably well the basic things involved in such an educational program. The first point is to identify the high calorie and the low calorie foods for the individual; this can be done fairly easily. Secondly, make the low calorie foods appetizing and satisfying. And thirdly, base the weight control on a normal meal pattern—no crash diets, no temporary diets, but instead, establish a consistent pattern of eating.

One of the fundamental points of such a program is that the diet must be based on the taste and food likes of the individual. That is why it is so difficult to succeed with a printed diet sheet, because one should talk directly with the patient, keeping as closely as possible to the individual's normal meal pattern; making as little change as possible in what the individual likes and what the individual is accustomed to eating —and bearing in mind that only small changes need be made. If one is concerned with prevention and not treatment, then it is necessary to reduce the intake by only 50 calories a day. This is quite easily done.

Miss Schur gave us ten commandments for patients to follow, and I was much interested in the psychological approaches she used, especially her deliberate tasting approach to a cream puff—of making a little bit of food look like a lot, of making unattractive food appear attractive, of making low calorie food look and taste like high calorie food, and the need to eat slowly—all reflect the need for self-control and strong motivation which are basic factors in the prevention of obesity. Most important of all is the dictum that these changes in dietary habits are for a *lifetime*. This is not only a diet, it is a new way of life brought about by slight changes, a way of life that can pay dividends in years of greater activity and better health.

A program for the prevention of obesity should really begin with school children or with the parents of small children.

Dr. Mayer mentioned the obese children of obese parents—we don't really know how much of this is due to heredity and how much of it is due to bad food habits passed on by parents to children at an early age. Experimental animals become obese if they are given a high fat diet at a very early age. So the problem, or a large part of it, is to establish proper food habits early in life in order to *prevent* the occurrence of obesity in later years.

Prevention of obesity is one of our biggest and most difficult health problems both now and in the future, if we are to make greater prog-

ress in our battle against the degenerative diseases. People now live longer with the help of antibiotics and immunizations, but the greatest progress in saving of life has been in *young people.* We have made *relatively little* progress at the other end of life, in prolonging the useful years of aged individuals. We have not made nearly as much progress with those diseases which are known so well as the top killers, the greatest of which is cardiovascular disease—which is partly the result of a lifetime of wrong habits of many kinds, including those associated with food.

The prevention of obesity should stand high on the list of health programs in order to make the best progress in controlling our health problems of the future.

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