The Results of Treatment for Obesity

A Review of the Literature and Report of a Series

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The current widespread concern with weight reduction rests on at least two assumptions: first, that weight-reduction programs are effective; second, that they are harmless. Recent studies indicate that such programs may be far from harmless.[1,2] This report documents their ineffectiveness. The results of treatment, as reported in the medical literature of the past 30 years, are first reviewed. The results of routine treatment of 100 consecutive obese persons in the Nutrition Clinic of the New York Hospital are then reported.

Review of the Literature

Hundreds of papers on treatment for obesity have been published in the past 30 years. Most, however, do not give figures on the outcome of treatment, and of those that do, most report them in such a way as to obscure the outcome of treatment of individual patients. Some authors, for example, report the total number of patients and the pounds lost without making clear how many patients achieved satisfactory results. Others report rates of weight loss of groups of patients for whom the duration of treatment was short or even unspecified. Still others use as their standard the percentage of excess weight lost, without noting the amount in pounds. Perhaps the greatest difficulty in interpreting the results of weight-reduction programs, however, is due to the exclusion from reports of patients who did not remain in treatment or were otherwise "uncooperative." Such patients probably represent therapeutic failures, and they certainly constitute an impressive part of any group. Reports which exclude them, therefore, are not useful in evaluating treatment. If papers with these shortcomings are omitted, the vast literature on treatment for obesity shrinks to just eight reports.[3-10] These are summarized in Table 1.*

Interpretation of these results is complicated by two omissions: the method of selecting patients and their degree of overweight. The first of these factors is often difficult to ascertain; the second makes reporting so complex as almost to obviate comparisons between groups. To facilitate such comparison we have listed the per cent of patients in each series who lost 20 and 40 lb., irrespective of their original weights. Although these criteria may introduce a bias in favor of treatment of more severely obese persons (who have more weight to lose), they have the virtue of being sufficiently modest to be widely applicable. Twenty pounds is indeed a small weight loss for the grossly overweight persons who are the subjects of these reports.

The review in Table 1 reveals two significant points. The results of treatment for obesity are remarkably similar and remarkably poor. Thus, with the exception of Feinstein, no author has reported even the modest success of a 20 lb. weight loss

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* The present study deals only with outpatient treatment of obesity. Inpatient treatment, with its far greater control over food intake, does not present the same problems.

TABLE 1.—*A Summary of Results of Treatment for Obesity as Reported in Medical Literature During the Past Thirty Years*

Author	Type of Treatment	Patients, No.	Weight Loss, % of Patients			
			Less Than 10 Lb	10–20 Lb.	More Than 20 Lb.	More Than 40 Lb.
Fellows (1931)	Employees clinic: individual instruction & self-selected diet	294	47	27	26	5
Evans (1938)	Private practice (internist): 600 Cal. diet	130	59	19	22	5
Gray & Kallenbach (1939)	Nutrition clinic: 900 Cal. diet & thyroid	314	52	20	28	8
Osserman & Dolger (1951)	Diabetes clinic: dextro amphetamine (Dexedrine)	55	35	36	29	2
Munves (1953)	Home economics research: interview or group discussion	48	61	27	12	4
Harvey & Simmons (1954)	Group psychotherapy project: 1,000 Cal diet	290	47	30	23	6
Young et al. (1955)	Experimental nutrition clinic: interview & diet	131	40	32	28	3
Feinstein et al. (1958)	Obesity research clinic: 900 Cal. formula diet	106	17	24	59	31

in more than 29% of his patients. The per cent of patients losing 40 lb. is far smaller. Furthermore, the results in six of the eight reports are within seven percentage points of each other. This remarkable uniformity, despite the widely differing circumstances of the studies, increases the assurance with which these results may be regarded.

These reports were all written by persons with a particular interest in obesity, by experts in the field. It is probable that their results, poor as they seem, are nevertheless better than those obtained by the average physician. To ascertain the results of treatment in routine clinic practice, a study was undertaken of the results of treatment for obesity of 100 consecutive obese persons in the Nutrition Clinic of the New York Hospital. These results follow.

Results in a Nutrition Clinic

One of the functions of the Nutrition Clinic of the New York Hospital is instruction of overweight persons in weight-reduction diets. Since there is no obesity clinic or other specialized weight-reduction agency in connection with the hospital, all reducing diets prescribed in every clinic are supervised in the Nutrition Clinic. The obese persons seen in this clinic thus represent a very large per cent and a relatively unbiased sample of the obese patient population of the hospital.

During a three-month period, one of us (M. M.) interviewed each obese person admitted to the Nutrition Clinic. (Obesity was considered as a body weight which exceeded by 20% the ideal weight for a person of medium build as established by the tables of the Metropolitan Life Insurance Company.[11]) Patients were referred from every clinic in the hospital, but the greatest number came from the General Medical Clinic. There was a wide variety of diagnoses in addition to obesity, but the health of most of the patients was good. Ninety-seven of the patients were women, and only three were men. Median age was 45, with a range from 20 to 67, while the median per cent of excess weight was 44, with a range from 21 to 119.

At their initial clinic visit the patients were instructed in balanced weight-reduction diets of from 800 to 1,500 Cal. They were seen thereafter at intervals of from two to six weeks in the Nutrition Clinic, and they also continued treatment for their original complaints in the clinic from which they had been referred. No drug therapy was administered in the Nutrition Clinic,

but anorexigenic drugs were prescribed for a few patients in other clinics.

Two and one-half years later the patients' charts were reviewed to determine the outcome of their efforts at weight reduction. The lowest weight reached after the first Nutrition Clinic appointment was considered the therapeutic effect, even though the weight had subsequently increased.

Results of Treatment.—The results of treatment in the Nutrition Clinic were even poorer than those reported in the literature. Only 12 of the 100 patients succeeded in losing more than 20 lb. at any time during the two years, and only one of these was able to lose more than 40 lb. Furthermore, 39 patients did not return to the Nutrition Clinic after their first visit, and, what is even more striking, 28 never returned to any clinic of the hospital. Since admission to the Nutrition Clinic occurs entirely by referral from other clinics, this represents the rupture of at least two therapeutic relationships.

Maintenance of Weight Loss.—Maintenance of weight loss is even more difficult to appraise than its achievement. Five studies indicate,[5,8,10,13,14] however, that maintenance is no more successful than initial weight loss; a majority of persons regain a majority of the pounds lost. We also found this to be the case. Our results are summarized in Table 2. In this Table any person who maintained a weight loss of 20 lb. or more is classified as a "success"; any person whose weight was within 19 lb. of the starting weight is a "failure." By these criteria, only six persons were still successful one year after treatment, and only two persons were successful two years after treatment. Four of the nine "failures" has regained all of the weight lost by the time of the two-year follow-up. Of the remaining five "failures," one had lost a maximum of 51 lb. and then had regained 35 of them; one had lost 32 lb. and regained 18 of them. Three lost 21 or 22 lb.; they regained, respectively, 13, 9, and 6 lb.

TABLE 2.—*Two-Year Follow-Up of Patients Who Lost Weight* *

	Success	Failure	No Information
End of treatment	12	--	--
1 yr. later	6	5	1
2 yr. later	2	9	1

* Study covers 12 patients, in the Nutrition Clinic of New York Hospital, who achieved a 20 lb. weight loss during treatment.

Ill Effects of Dieting.—Attention has lately been drawn to the occurrence of emotional disturbances in obese persons in the course of attempts at weight reduction.[1] Such disturbances, occurring in one-third of the obese persons treated in a psychosomatic clinic, are the subject of a more detailed report by one of us.[2] This report, by a psychiatrist, is subject to the criticism that it is based on a highly selected group of patients. The present study permitted us to ascertain more nearly the true incidence of untoward effects of attempts at weight reduction among the obese population as a whole. During the initial interview by the dietitian, each patient was questioned as to any ill effects encountered during her most recent weight-reduction regimen and attributed by her to the regimen. This aspect of the study, then, was retrospective and provided information which is not strictly comparable to that obtained in its other aspects. No diagnostic formulation of the patient's complaints was attempted, but the presence and the character of the symptoms were recorded.

Of the 100 patients referred for reducing diets, 72 reported that they had attempted dieting previously, several on more than one occasion. Of these 72 patients, 54% reported the presence of symptoms during at least one reducing regimen, and 55% of all such regimens were characterized by the presence of symptoms. The commonest complaints were "nervousness" and "weakness," each reported by 21% of the patients. Less frequent symptoms were "irritability" in 8%, "fatigue" in 5%, and "nausea" in 4%.

No attempt was made to study emotional disturbances which occurred in the course

of the treatment prescribed in the Nutrition Clinic. Such information, however, became available during the investigation of four patients who had successfully reduced and had then discontinued treatment. One was a man who achieved the greatest weight loss of the study, from 241 lb. to 190 lb. He reported that the reducing regimen had been associated with mounting tension which culminated in what was diagnosed as an acute schizophrenic reaction. He was treated with tranquilizers in a hospital for four months and was discharged much improved. He discontinued dieting shortly before hospitalization and gradually regained 35 lb. For the past two years his weight has remained stable and he has been in good health.

Evaluation of Possible Indices of Prognosis

In view of the ineffectiveness and ill effects of weight-reduction regimens, knowledge of factors influencing prognosis would be helpful. If it were possible to select in advance those patients most likely to benefit from such regimens, others could be spared suffering and fruitless effort and physicians could concentrate on those in whom their intervention might make the difference between success and failure. Furthermore, such information might provide a basis for differentiating different types of obesity and, ultimately, for understanding the causes of this disorder.

In the present study four factors were investigated for their usefulness as indices of prognosis. They were (1) sex of the patient, (2) presence of the "night-eating syndrome," (3) the outcome of previous attempts at weight reduction, and (4) response to the Taylor Test for Manifest Anxiety. Only the first of these indices, the sex of the patient, seemed of predictive value.

Sex of the Patient.—Sex of the patient has not, to our knowledge, been previously suggested as a possible factor in the success of efforts at weight reduction. We were, therefore, surprised to discover that whenever results of treatment have been reported according to the sex of the patient, men have been shown to be more successful than women. These results, together with those of the present study, are summarized in Table 3.[4,9] It will be noted that in each study a far higher percentage of men than women were able to achieve the modest success of a 20 lb. weight loss. These differences are significant at the 2% level (Feinstein), the 7% level (Munves), and the 2% level (present series), as determined by direct calculation of probability.

TABLE 3.—*Relation of Sex of Patient to Outcome of Attempts at Weight Reduction* *

	Feinstein et al.		Munves		Present Series	
	Success	Failure	Success	Failure	Success	Failure
Men	10	1	5	15	2	1
Women	50	45	1	27	10	87

* "Success" is defined here, as elsewhere in this report, as a 20 lb. weight loss.

The discrepancy between results of treatment for men and for women is even more pronounced if 40 lb. is considered as a criterion of success. Sixty-eight per cent of the men in Feinstein's report lost 40 lb., as compared with twenty-eight per cent of the women. Furthermore, the only four subjects in Munves' study to lose 40 lb., and the only one in the present study who lost this much, were all men. It is worthy of note that these differences are not a result of differences in age, per cent overweight, or pounds overweight between the men and the women.

A fourth study,[12] reported in a somewhat different manner, also found men to be more successful than women in attempts at weight reduction. The mean percentage of excess weight lost by a group of 13 men was 46%, as compared with a value of 34% for 97 women.

The Night-Eating Syndrome.—A previous report has described a peculiar pattern of food intake characterized by morning anorexia, evening hyperphagia, and insom-

nia.[15] This "night-eating syndrome," which appears to be confined to obese persons, was found in 66% of those attending a psychosomatic clinic. Attempts at weight reduction by persons manifesting the syndrome were usually unsuccessful. An attempt was made to determine if this were also true of a less carefully selected population.

The results of the present study gave no support to the expectation that the night-eating syndrome might be of value in predicting inability to lose weight. Although 12 of the 14 persons manifesting the syndrome were indeed unsuccessful, 2 succeeded in losing more than 20 lb. This rate of failure is no higher than that among persons free of the syndrome.

There are at least two possible explanations of this finding. Presence of the night-eating syndrome may, indeed, be of no relevance to the outcome of attempts at weight reduction. On the other hand, the low incidence of persons manifesting the night-eating syndrome and of those successful in losing weight makes it unlikely that any but the closest association could be demonstrated.

Outcome of Previous Attempts at Weight Reduction.—It has been suggested that previous successful weight reduction increases the probability of successful weight reduction in any later effort, and, conversely, that failures in previous attempts bode ill for further trials.[16] No support for this hypothesis was obtained.

TABLE 4.—*Relation of Outcome of Previous Attempts at Weight Reduction to Outcome of Current Attempt* *

	Previous Outcome			
Current Outcome	Success	Failure	No Attempt	Total
Success	2	8	2	12
Failure	14	32	14	60
Did not return	7	9	12	28
Total	23	49	28	100

* It will be noted that previous success or failure is not predictive of the outcome of later attempts at weight reduction.

Table 4 reveals that of the 23 persons who had reported any previous dietary success, only 2 were able to lose 20 lb. On the other hand, of the 49 who had failed in all previous attempts at weight reduction, 8 were successful in this one. The results were thus the antithesis of those predicted by the hypothesis: probability of success was actually slightly higher for persons with previous dietary failure.

Taylor Test for Manifest Anxiety.—It is widely believed that emotional disturbances contribute to the pathogenesis of obesity as well as to the failure of attempts at weight reduction. An effort was made, therefore, to determine if an index of emotional disturbance could predict the outcome of attempts at weight reduction. For this purpose the Taylor Test for Manifest Anxiety was administered to each patient during the initial visit to the Nutrition Clinic. This test is a 50-item true-false questionnaire comprising those items of the Minnesota Multiphasic Personality Inventory which deal with manifest, or free, anxiety.[17] One point is scored for each response indicating the presence of anxiety; the higher the score, the greater the anxiety. We postulated that subjects with higher scores should have a poorer prognosis for weight reduction. A corollary hypothesis, deriving from the purported relationship of emotional disturbances and obesity, was that obese persons should show higher scores than normal controls.

Only the corollary hypothesis was validated. The mean score of the 100 obese persons was 18.0±9.5. This contrasts with scores of 15.3±7.9 and 15.9±7.5 for two control groups of 750 and 414 subjects respectively,[18] a difference significant at the 1% level. These obese persons appear to show greater anxiety than normal, as anxiety is measured by the Taylor test. The test was not, however, predictive of the outcome of attempts at weight reduction. The subjects who reduced successfully actually had higher anxiety scores than those who failed, although the difference did not approach statistical significance.

Comment

In recent years the ill effects ascribed to excessive body weight have received wide attention, as have the benefits to be achieved by weight reduction. As a result many physicians and their patients, who had formerly looked upon weight reduction as a cosmetic conceit, have come to consider it a therapeutic imperative. A variety of lay institutions, notably the magazines for women, has seized upon this growing interest in weight reduction and has helped to magnify it to the proportions of a national neurosis. The influences responsible for this unfortunate development are not fully understood. The medical profession, however, must accept some responsibility. For underlying the extravagances of the miracle diets and the reducing salons are certain widely held medical attitudes.

Many years ago detailed metabolic studies demonstrated that human beings do not defy the second law of thermodynamics and that excessive body fat results from an excess of caloric intake over caloric expenditure. This not unreasonable finding was thereupon enshrined as the dictum that "all obesity comes from overeating," and the treatment of obesity lost its glamour. The physician's job, it seemed, was simply to explain that semistarvation reduces fat stores, to prescribe a diet for this purpose, and to sit by. If the patient lost weight as predicted, this merely confirmed the comfortable feeling that treatment of obesity was really a pretty simple matter. However, if, as so often happened, the patient failed to lose weight, he was dismissed as uncooperative or chastized as gluttonous. It was the rare physician who entertained the possibility that failure to follow a regimen might in itself be a medical problem. Rarely have physicians so readily surrendered a part of their domain to moralizing, indifference, and despair.

What have been the consequences of this surrender? First, the naive optimism of the medical profession about treatment for obesity has been widely accepted by the lay public. Most obese persons feel that they should be able to lose large amounts of weight in a short time and with little discomfort. When they find that these expectations are not realized and when they encounter the irritation of their physicians over this failure, they turn to any agency which promises results. The profusion of nonmedical agencies testifies to the extent of our patients' needs and to the magnitude of our failings.

How may the medical profession regain its proper role in the treatment of obesity? We can begin by looking at the situation as it exists and not as we would like it to be. We can acknowledge that treatment for obesity is a terribly difficult business, one in which our experts achieve only modest success, and the rest of us, even less. It is a treatment which can be fraught with danger, a treatment not to be undertaken lightly by any obese person and by some perhaps not at all. Certainly weight reduction is not a matter to be left to unqualified practitioners.

Lowering our level of aspiration may go far toward achieving our aims. If we do not expect weight reduction as a matter of course we may be able to accord due recognition to success. If we do not feel obliged to excuse our failures we may be able to investigate them. Learning to respect the complexities of their illnesses will help us to respect our patients. And the patient who has the respect of his physician has little reason to seek elsewhere for treatment.

Summary

A review of the literature on outpatient treatment for obesity reveals that the ambiguity of reported results has obscured the relative ineffectiveness of such treatment. When the per cent of patients losing 20 and 40 lb. is used as a criterion of success, the reports of the last 30 years show remarkably similar results. Although the subjects of these reports are grossly overweight persons, only 25% were able to lose as much as 20 lb. and only 5% lost 40 lb.

Routine treatment of 100 consecutive obese outpatients in the Nutrition Clinic of a large teaching hospital was even less successful. Only 12% were able to lose 20 lb., and only 1 patient lost 40 lb. Furthermore, 28% of the patients never returned to either the Nutrition Clinic or the referring clinic after their first visit. Two years after the end of treatment only two patients had maintained their weight loss.

A search for criteria which might aid in predicting the outcome of attempts at weight reduction revealed only one: Men appear to be more successful than women.

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