Follow-Up of Patients Starved for Obesity

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A follow-up of 1–50 months is presented in 25 superobese subjects who were starved for an average of 38 days. None of the subjects sustained their weight loss but four have had partial success. The patients had marked difficulty dieting after hospital discharge in the face of routine family and work stresses. The maintenance of weight loss was complicated by the psychological problems which were more apparent in these subjects when they were thin, and by the great amount of energy which they had to devote to dieting particularly when they faced the stresses of daily life outside the hospital. For most patients a return to obesity was more comfortable and tolerable than trying to fight with their problem in the presence of environmental demands.

Obesity is a common disorder with an elusive etiology and without a definitive treatment. Prolonged total starvation is a comparatively recent therapy for the severely obese person. Drenick *et al*[1] have described its use and Spencer *et al*[2] the associated metabolic changes. The fasting technic generally is recommended for use in hospitalized subjects who have no other significant physical or psychological disease. During starvation no caloric intake is provided but intake of fluids, vitamins, and electrolyte replacements is mandatory. Normal physical activity is encouraged. Fasting subjects lose approximately 1 lb daily without serious physical complications. Physical sensations of hunger are present for 48 hr but then diminish concomitant with a metabolic acidosis caused by the breakdown of fats. Minor physical discomforts experienced by some subjects include: lightheadedness, mild headache, abdominal cramping, and an unpleasant taste. Starvation is terminated if hepatic dysfunction, infection, cardiac complications or very high levels of uric acid develop. Psychological distress is unusual during short term and intermittent fasting. However, prolonged starvation (21 days or more) can be accompanied by tension increase, depressive trends, perceptual changes or hostile-aggressive behavior.[3, 4]

Three major fasting technics are described: short term,[5, 6, 7, 8] up to 2 weeks, intermittent,[9] and prolonged.[10, 11] A review[12] of these starvation technics indicates that all produce rapid weight loss reaching

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Received for publication July 14, 1969; final revision received Oct 28, 1969.

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a level of 150 lb in the case of most prolonged starvation. In these studies follow-up data are limited but in general ideal weights were not reached and reductions not sustained.

Two follow-up studies have been done. Huncher[13] reports on a mail survey of 709 patients that Duncan treated by the intermittent starvation technic. After discharge these patients were supposed to fast 1 day/week and diet until an ideal weight was attained; 50% of patients responded and most were those recently hospitalized. Of the respondents, 46% reported continued weight decrease, 21% remained the same, and 33% gained weight. Only 5% were satisfied that their weight was approaching a normal level and such success required a permanent change in dietary pattern. If the 50% not answering the questionnaire are considered failures it means that only 1 person in 3 even maintained the weight loss achieved during hospitalization.

MacCuish *et al*[14] report a follow-up study of 25 patients who fasted 25 days. After 1 year only 4 subjects weighed less than before starvation. The 1 patient who weighed substantially less achieved this through strenuous effort (intermittent outpatient fasting) but at the same time developed a severe depressive disorder.

METHODS

This is the report of an outpatient follow-up study of 25 severely obese subjects (24 male, 1 female) who were starved in a hospital for periods of 8–85 days (average 38 days). The findings during starvation are reported elsewhere.[2, 4] Weight loss averaged 67 lb/subject which included pre- and poststarvation periods of varying length on a 600–1000 calorie diet. No serious physical complications occurred. Psychological study revealed that all subjects presented with long histories of obesity but no specific type of personality or specific type of psychiatric history. During starvation most patients were pleased with their weight loss and superficially pleasant; many, however, eventually manifested mental changes ranging from unpleasant feelings to evidence of personality disorganization, with a general increase in each as weight decreased.

Follow-up ranged from 1–50 months. Each subject was given an appointment for a monthly posthospital visit at which time he was weighed, had a determination of serum electrolytes and attended a group meeting. During the group meetings the subjects were encouraged to report on their current weight status and any difficulty or successes encountered during the poststarvation period. The starvation procedure was also discussed at length. The group meetings had neither a formal psychotherapeutic intent or a definite format for the treatment of obesity. If this formal follow-up was unsuccessful, telephone contact was attempted. Each patient was provided with a diet at discharge which if followed, would have resulted in continued gradual weight reduction.

RESULTS

Some data were available on all except 2 subjects and this is summarized in Table 1. Attendance at the follow-up clinic was erratic in the majority of cases.

Weight Status

Despite starvation, dietary counseling and outpatient visits none of the subjects reached an ideal weight. Fourteen (56%) had essentially regained or exceeded their prestarvation weight within 1 year. Seven subjects (28%) dropped out of the follow-up in 2 months or less, and phone contact was unsuccessful. Three of these subjects showed rapid weight gain during even this

Table 1. Weight Loss in Obese Patients Is Followed During Starvation and Follow-up Periods.

Subject No.	Age	Weight before starvation	Days starved	Weight at discharge	Follow-up weight	Length of follow-up (months)
1	33	337	85	235	380	15
2	45	286	18	253	283	4
3	32	326	8	304	325†	‡
4	46	271	33	222	261	12
5	55	198	41	154	220	32
6	38	370	42	246	375	50
7	43	337	61	260	335	10
8	37	242	27	218	300	30
9	23	323	38	262	325†	‡
10	43*	290	74	216	275	30
11	40	341	45	275	273	1
12	42	304	71	200	209	5
13	45	330	20	271	283	2
14	33	473	46	370		No follow-up
15	36	304	48	233	235†	‡
16	30	332	44	279	440	28
17	32	334	41	268		No follow-up
18	42	306	32	255	305†	‡
19	31	315	35	249	260	2
20	28	306	39	216	312 highest 252 lowest	24
21	35	271	24	188	275	12
22	48	297	25	244	300	12
23	42	297	10	240	235	2
24	43	341	24	244	290	12
25	45	337	27	257	287	2

* Only female.
† Phone or family report.
‡ Left hospital against advice; no clinic follow-up.

brief follow-up period, and it was the consensus of staff and other obesity subjects that those not returning to the obesity program were avoiding it because of unsuccessful diet attempts.

Four subjects (16%) have achieved some success. One (No. 12) after 5 months of follow-up has maintained nearly a 100-lb weight loss, but with difficulty. He utilizes intermittent starvation, self-prescribed amphetamines and diuretics, and individual psychotherapy, but still experiences psychological turmoil. Another (No. 20) gained 100 lb within 6 months of discharge, succeeded in losing 50 lb of this in the next year, but has now regained 25 lb. During this period he had 1 year of individual or group psychotherapy, yet continued to show personal and occupational problems. Subject No. 15 has by family report maintained a 70-lb loss for 1 year. He developed a paranoid psychosis during starvation, left the hospital against advice and since discharge his only communication has been an indignant, accusatory letter to the chief metabolic investigator. Subject No. 24 had maintained half of a 100-lb loss when he was rehospitalized after 1 year for hypertension. He too manifested personal and occupational adjustment problems.

Attitudes Toward Starvation

When hospitalized for starvation all these subjects were motivated for drastic treatment of their severe obesity. They admitted fatness was threatening their physical and/or social well-being. Most patients saw starvation as a rapid reducing method and, in retrospect, several conceded that it looked like a magical way of losing sufficient weight so they would look normal again. They hoped for large weight losses that would produce a normal appearance and life which in turn would be rewarding enough to cause a permanent weight loss.

In looking back the subjects did not feel starvation as such was a hard experience. Several said they could have continued indefinitely since fasting was much easier than dieting. They recognized that problems developed during the fast but blamed these on the medical staff, but not on what might have been going on within themselves. In retrospect they consistently faulted the hospital confinement during starvation, feeling they would have profited from home or work passes which would have exposed them to the routine stresses which immediately did confront them on discharge. Starvation and dieting was allegedly not difficult in the hospital but just didn't work on the outside. Particularly when fat again, they criticized the medical profession for not giving them straight answers on obesity, and one man referred to starvation as a witch doctor maneuver.

Some subjects bragged about the length of their starvation. Two claimed they had eaten without detection. A few were willing to fast again, and this was done in three instances, but still with no sustained reduction. At least 3 subjects said they would never starve again, either because it was just an "experiment," or that it would do no good.

Attitudes Toward Food and Obesity

During follow-up all subjects gained weight and did not deny their excessive eating; a form of denial which they tended to use upon hospital admission. When questioned they described uncontrolled appetites manifested by huge intake, food binges, and nighttime eating. They described eating automatically ("for no reason") but also for pleasure or control of tension. In respect to posthospital dieting a majority stated they were uncomfortable trying to work, deal with home problems, and diet at the same time. For example, 2 subjects insisted people were demanding too much and taking advantage of them; weight problems seemed unimportant. Two other men felt frustrated, irritable and angry, to the point of concern that they might lose control and harm someone. Another had feelings of depersonalization and felt his head and body size was changing. There was a genuine intolerance of life stresses in the poststarvation state.

After starvation a typical pattern was to follow prescribed diets for a short time, but then at some time justify excessive eating because of life stresses, a family celebration, or the fact that they were safely 50–150 lb below a top weight. At first the subjects reported a confidence that they could go off their diet and return later. This sequence never occurred which they later admitted. Once they grossly violated their diets they did not return to a consistent restricted food intake. Weight was added a few pounds a month but soon progressed to 20 lb or more a month until they were back to a superobese state where some equilibrium was reached.

When again grossly overweight they had fewer unwanted feelings and were more stable as manifested by improved occupational functioning, apparent tranquility, good group interaction and objective eval-

uations of their obesity. Dismay and concern regarding their fatness was present, but these items were discussed with less urgency than family, work, and personal problems which had achieved prominence when they were trying to diet.

In some very frank discussions these again obese persons conceived of their disorder as one of an excessive appetite combined with an increased tendency to gain weight, ie, some type of metabolic disorder. It was usually their own conclusion that weight control could only result from a constant awareness of these excessive tendencies and continuous attention to caloric intake. However, if they devoted this much concentration to weight control they lacked the energy for other demands. This realization made some subjects bitter while others admitted they would rather be fat than devote their whole life to weight reduction.

DISCUSSION

Prolonged starvation in these well-motivated subjects was ineffective in providing sustained improvement in their obesity. While intensive dietary restriction was tolerable and successful for most subjects while they were hospitalized, it did not modify appetite, intake or consumption on a long term basis. It seems that starvation has an obvious use in producing short term weight loss but it is at best an emergency treatment of the obese person who is physically disabled, or an initial treatment in a long term weight reduction program.

In another report[4] describing the behavior of these obese subjects before and during starvation the authors found evidence that severe obesity is in many ways a typical habituation syndrome.

Food is an intense preoccupation with the very obese person. Hours are devoted to preparation and consumption. "Binges," intake to the extent of physical duress, deviousness and repeated short-lived efforts at control are all well known practices. Threats to physical and social well-being are largely ignored. During prolonged food restriction, such as in starvation, unwanted feelings and psychological disorder are often manifested. Return to eating relieves this unrest and was actually acceptable to even the motivated subjects in this study.

Food addiction does not produce the extent of social and physical deterioration seen with alcohol or other drugs. However, treatment problems are uniquely difficult since the obese person obviously cannot give up food completely (as the alcoholic must give up alcohol) which is considered a necessity for the successful treatment of other types of habituations. Instead, he must repetitively perform an act over which he has little control. He is constantly tantalized to gorge himself and usually admits that it is much easier to starve than follow a diet.

Desired weight reduction and the patient's limited capacity to reduce require equal attention. Irrespective of the patient's weight, dieting must be slowed, or even stopped, if the program requires so much energy it is a detriment to the patient's economic or social functioning, or if the less obese state produces anguish or psychiatric disorder which is a greater disadvantage to the patient than his obesity. From studies of these very obese people it appears that they may have a weight below which they cannot function adequately.

REFERENCES

1. Drenick, E. J., Swenseid, M. E., Blahd, W. H., and Tuttle, S. G. Prolonged starvation as a treatment for severe obesity. *JAMA 187:* 100, 1964.

2. Spencer, H., Lewin, I., and Samachson, J. Changes in metabolism in obese persons during starvation. *Amer J Med 40:*27, 1966.

3. GLUCKSMAN, M. L., HIRSCH, J., MCCULLY, R. S., BARRON, B. A., and KNITTLE, J. L. The response of obese patients to weight reduction. *Psychosom Med 30:*359, 1968.

4. SWANSON, D. W., and DINELLO, F. A. Severe obesity as a habituation syndrome: Evidence during a starvation study. *Arch Gen Psychiat (Chicago)* In press.

5. BLOOM, W. L. Fasting as an introduction to the treatment of obesity. *Metabolism 8:*214, 1959.

6. SCHULTZ, A. L., WERNER, A., and KERLOW, A. The use of total starvation in the management of chronic obesity. *Minn Med 48:*441, 1965.

7. BIGGERS, W. H. Obesity: Affective changes in the fasting state. *Arch Gen Psychiat (Chicago) 14:*218, 1966.

8. FISCHER, N. Obesity, affect and therapeutic starvation. *Arch Gen Psychiat (Chicago) 17:* 227, 1967.

9. DUNCAN, G. G., HUNSCHER, M. A., CRISTOFORI, F. C., DUNCAN, T., and SCHLESS, G. L. Intermittent total fasts and obesity. *Postgrad Med 38:*523, 1965.

10. DRENICK, E. J., and SMITH, R. Weight reduction by prolonged starvation. *Postgrad Med 36:*95, 1964.

11. KOLLAR, E. J., and ATKINSON, R. M. Responses of extremely obese patients to starvation. *Psychosom Med 28:*227, 1966.

12. SWANSON, D. W., and DINELLO, F. A. Therapeutic starvation in obesity: A review of psychological findings and efficacy. *Dis Nerv Syst* In press.

13. HUNCHER, M. A post-hospitalization study of patients treated for obesity by a total fast regimen. *Metabolism 15:*383, 1966.

14. MACCUISH, A. C., MUNRO, J. F., and DUNCUN, L. J. P. Follow-up study of refractory obesity treated by fasting. *Brit Med J 1:*19, 1968.