THE EFFECT OF POSTTREATMENT TELEPHONE CONTACT UPON ADOLESCENT WEIGHT LOSSES ACHIEVED IN A MULTICOMPONENT BEHAVIORAL TREATMENT PROGRAM

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BY

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ABSTRACT

The present study was designed to evaluate a strategy for enhancing maintenance of weight losses achieved in a standard 8-week multicomponent behavioral weight management program for overweight adolescents. Telephone contact with adolescents and their parents was gradually reduced over a 6-month period after the behavioral treatment program terminated. Thirty-one adolescents, ages 12-16 years, were recruited through newspaper advertisements and a memo distributed to a variety of health professionals and school guidance counsellors. Subjects were required to be at least 20% overweight, not to be involved in other weight loss programs, to have a parent willing to read weekly handouts from a parent manual and complete weekly assignments, and to have personal goals towards improved physical well-being.

Following the weight management program, 26 subjects (6 males and 20 females) were randomly assigned to Maintenance (M) (telephone contact) or Nonmaintenance (NM) (no telephone contact) groups. Each group contained equal numbers of high, medium, and low weight losers and both genders. All subjects were seen for assessment at 3- and 6-months after the treatment program.

There were no significant differences as a result of the posttreatment maintenance strategy on pounds lost, change in percentage overweight, weight index, change in weight index, triceps skinfold, self-esteem, and mean adherence ratings. Nor were there any significant interaction effects. Significant time effects were present for weight change and change in percentage overweight. Although subjects weighed significantly less at posttreatment than at pretreatment and were significantly lower in percentage overweight at 6 months than at 3 months, there was no differential effect of the posttreatment telephone contact. Subjects who lost weight (Losers) during the treatment program were compared with subjects who gained (Gainers) during the treatment program. Gainers continued to gain while Losers maintained their weight losses at 3- and 6-month follow-up.

No differential effect of the posttreatment maintenance contact was demonstrated.

Possible reasons for failure to demonstrate an effect for posttreatment telephone contact and suggestions for further research are discussed.

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Obesity among adolescents is a significant and increasing public health problem with serious health consequences. An estimated 10 to 25 percent of U.S. adolescents are at least moderately overweight (Huenemann, Hampton, Behnke, Shapiro, and Mitchell, 1974; Lauer, Conner, Leaverton, Reiter and Clarke, 1975). Forbes (1975), in reviewing data on the prevalence of childhood obesity, reported that adolescents today appear to be heavier than they were 20 years ago. Also, research seems to indicate that obesity is increasing in the general population (Build and Blood Pressure Study, 1960). The present study addresses the main problem, as currently perceived, for adolescent obesity, that of determining effective means of maintaining weight loss.

Definition of Obesity and Overweight

Precise estimates of the prevalence of obesity are difficult to obtain because of measurement and definitional problems. Definitions of obesity vary throughout the literature. Obesity is traditionally defined as a certain percentage overweight relative to normative data obtained from sampling a population. However, norms vary for diverse populations and the norm for one population may be one of obesity when compared to a norm from a different population. Another obesity measurement problem is the lack of a set criterion which would allow one to determine how overweight a person must be to be considered obese.

A further complication is that "obesity" and "overwieght" have been used interchangeably. Being heavy can denote either excess body fat tissue or above average muscle mass. The term "obese" is interpreted as "overfat"; yet a person may have excess lean body mass leading to being "overweight". Therefore, "overweight" does not necessarily imply "obesity" and using these terms interchangably obscures a useful distinction.

In adolescents, age, sex, and body build must be considered when determining the appropriateness of a given weight. Many norm tables on adolescent weight fail to reflect individual variation in these factors. However,

there is an increasing awareness of dependent measures which account for developmental growth of children (Brownell, 1980; Colletti and Savrin, 1980; Edwards, 1978). These indices, or some derivation of them, should provide a more sensitive and accurate outcome measure. An index which has been developed to account for growth will be discussed later in this review.

As noted above, considerable variability exists in the definition of overweight. There is a need for agreement upon a rigorous classification system. Many researchers arbitrarily consider 15%, 20%, or 30% above normed weight as defining "overweight". Hanna, Loro, and Power (1981) suggested that obesity researchers adopt a refined definition of overweight: 10-20% over normed weight, slight; 21-30%, mild; 31-50%, moderate; 51-75%, severe; 76-100, massive; 101% or more, morbid. This classification system was based upon a clinical evaluation of 158 clients treated in a behavioral and dietary weight loss program. Differences in weight loss and eating habits were related to the degree of overweight. Furthermore, Brownell (1982) suggested a minimum of 25% overweight for inclusion of subjects in weight reduction studies. This appears to be moderately consistent with Hanna et al.'s classification system since 25% over normed weight would be classified as mildly overweight. Therefore, a criterion of 20-30% above normed weight would seem appropriate for weight loss programs.

Relationship of Juvenile Obesity to Adult Obesity

Persons who become obese early in life have a greater probability of remaining overweight than persons who remain in the lean-to-normal weight ranges during the growing years. It is well established that obesity in childhood correlates strongly with obesity later in childhood (Eid, 1970; Melbin and Vuille 1973; Miller, Billewicz, Thomson 1972) . Also, when left untreated, weight in childhood tends to persist into the adult years (Abraham, Collins and Nordsieck, 1971; Abraham and Nordseick, 1960; Charney, Goodman, McBride, Lyon and Pratt,1976; Christakis, 1967; Coates and Thorensen, 1980; Johnston and Mack, 1978; Stunkard and Burt, 1967). Christakis (1967) reported that of 1,495 white

females ages 20-60, 22% cited the onset of obesity before puberty, approximately 11% in their early teens, 20% after age 20, 13% at their marriage, 16% in association with pregnancy and 7% after age 40.

Haase and Hosenfield (1956) found that 80% of a group of 50 overweight children when reexamined at 20-36 years of age were still strikingly overweight. Lloyd, Wolf and Whelan (1961) observed that 75% of their obese children, ages 9 to 11, remained obese 8 years later. In the Haggerstown prospective study, Abraham, Collins, and Nordseick (1971) followed a cohort of 717 white males from 1923-1928 to 1961-1963. A comparison was made between relative weights at ages 9-13 and ages 35-40. Relative weight was defined as percentage deviation of actual weight from an average weight for a given sex, age and height. Overall, they found that lean persons remained lean and the markedly overweight persons remained heavy. Abraham and Nordseick (1960) observed that 80% of children who were obese at the age of 10 to 13 remained obese in their 30's. Stunkard and Burt (1967) reported on this sample 10 years later and observed that the odds against an obese child becoming a thin adult, which were 4 to 1 before adolescence, rose to 28 to 1 if weight reduction had not occurred by the end of adolesence. Therefore, it is evident that a relationship does exist between juvenile weight and adult obesity; fat children usually become fat adults.

Complications Associated with Adolescent Obesity

Health Problems. It is widely agreed that obesity is bad and more obesity is worse. Obese children, in addition to the risk of becoming obese adults, are at high risk for developing a number of childhood disorders. Widespread evidence indicates that there is an increased incidence of orthopedic problems, hypertension, diabetes mellitus and other endocrine disturbances, cardiovascular disease, and hyperlipidemia in obese children and adolescents (Abraham et al., 1971; Clarke, Morrow and Morse, 1970; Coates and Thorensen, 1982; Court, Hill, Dunlop and Boulton 1974; Friedman, 1975; Israel and Stolmaker, 1980; Londe, Bourgoyne, Robson and Goldring ,1971; Mann, 1974; Mayer, 1970).

Obese infants have been found to have higher rates of respiratory infection. In addition, obese children suffer from inadequate circulatory adjustment to exercise, shortness of breath and clumsiness which may lead to an avoidance of physical exercise; this may contribute further to obesity and create other health problems (Mayer, 1970; Mobbs, 1970).

In a number of studies, investigators have reported disproportionately large numbers of obese children with elevated levels of plasma lipids which is in itself an additional risk factor (Clarke, Menon, Morse, and Keyser, 1970; Lauer, Conner, Leaverton, Reiter and Clarke, 1975). In the Muscatine study, Lauer et al. (1975) reported that 17.8% of those whose skinfold thickness exceeded the 90th percentile were at or above the 90th percentile in serum cholesterol, 23.5% were at or above the 90th percentile for triglycerides; these are both additional risk factors for cardiovascular problems. In Clarke et al.'s (1970) study, 20% of the obese subjects had cholesterol concentrations greater than 200mg/100ml as compared to 11% and 10% of medium and lean students, respectively. Therefore, it is quite clear that high proportions of overweight children have additional risk factors associated with their weight problem which add to the already serious medical risk.

The prevalence of obesity and overweight is much higher among children and adolescents classified as hypertensive compared to normotensive. Londe et al. (1971) studied 74 hypertensive children, ages 4 to 18, from a general practice. They observed that the prevalence of obesity was higher in the hypertensive (53%) than the normotensive controls (14%). Lauer et al. (1975) observed that of children in his sample who exceeded the 90th percentile for skinfold thickness, 28.6% and 28.4% had systolic and diastolic blood pressures, respectively, which were above the 90th percentile. Correlations between skinfold thickness and blood pressure were .39 for systolic and .36 for diastolic.

Endocrine disturbances have also been associated with obesity in childhood. For example, Martin and Martin (1973) found that 28% of an obese group (42

children, ages 2-16 years) had chemical diabetes and a further 26% had significant impairment of carbohydrate tolerance as compared to a normal group. Growth hormone was also significantly lower in the obese group.

As mentioned previously, overweight among young persons is associated with elevation in cardiovascular risk factors such as hypertension and elevated serum cholesterol levels. (Lauer et al., 1975; Srinivasan, Frerichs, Webber and Berenson, 1976). However, the status of obesity as a cardiovascular risk factor remains controversial (Mann, 1974). Gordon and Kannel (1973), in the Framingham study, stated that overweight made an important and independent contribution to the risk of coronary heart disease. Abraham et al. (1971) reported an increased prevalence of arteriosclerotic heart disease and cardiovascular renal disease in adults who were markedly overweight as children. However, the number of subjects was too small to permit statistical comparisons. Simultaneously, they observed an increased likelihood of developing hypertensive vascular disease and cardiovascular renal disease in individuals who increased their relative weight status from childhood to adulthood. Because fat adolescents do not spontaneously become average weight adults, it is necessary to intervene in order to effect weight changes. Also, these interventions may alleviate some of the medical complications associated with this condition.

Social and Emotional Problems. The psychological and social hazards of being overweight may be as grave as the associated medical complications. The obese are often treated as a stigmatized minority group (Allon, 1979; Wolfgang and Wolfgang, 1971). Stafferi (1967), for example, reported that even in those as young as four years old, body types influenced likes and dislikes. Ninety boys were shown full-body silhouettes of a mesomorph, an endomorph, and an ectomorph. Each child was given 39 adjectives to describe the silhouettes. The endomorph was less likely to be described as "best friend" and having "lots of friends", but he was the one more frequently described as "gets teased". The endomorphs were more frequently portrayed as "lazy", "cheats", "mean", "dirty", "sloppy", "ugly" and "stupid".

Kindergarten children, both obese and normal, have been observed to prefer figures of average physique and dislike fat physiques (Lerner and Gellert, 1969; Lerner and Schroeder, 1971). The chubby child is chosen consistently as being the person whom other children least prefer to resemble. Richardson, Goodman, Hastorf and Dornsbusch (1961) found that thin and fat children rated, in order of likability, pictures of obese children as being less likable than pictures of other children with various physical abnormalities (e.g., confined to a wheelchair, missing a hand, facial disfigurement, wearing a leg brace).

Canning and Meyer (1966) found a strong bias in college admissions against obese boys and especially obese girls. Obese and nonobese youth did not differ on objective measures of intellectual ability, achievement, or percentage who applied for college admission. However, an obese female had only one third as much a chance of getting into a "prestige" college, the college of her choice or, indeed any college. as a nonobese girl (Mayer, 1968). Also, a court case has been reported in the United States consequent to employment having been refused solely on the grounds of body weight (Brownwell, 1979). Therefore, discrimination of the obese is quite commonplace in our society today.

Given that the obese child will be discriminated against and devalued it is not surprising that the child may show some psychological effects. Greater prevalence of psychological problems among the obese versus the nonobese have been reported (Bruch, 1970). Evidence for this, however, is somewhat contradictory. Monello and Mayer (1963) reported that their sample of 100 obese females in a weight reduction camp showed characteristics similar to those exhibited by members of other minority groups. Three projective tests were administered in a group situation: word associations, sentence completions and picture description tests. Results from these tests revealed two groups of females who showed excessive concern with their status, withdrawal, passivity, and an acceptance of the dominant value system.

Held and Snow (1972) observed that their obese adolescent females exhibited

significantly more problems on the Mooney Problem Checklist than did control subjects. The MMPI scores of the obese reflected depression, low self-worth, alienation, distrust of others, nonconformity and problems with impulse control. Sallade (1973) measured social adjustment (Ohio Social Acceptance Scale) and emotional adjustment (California Test of Personality and The Way I Feel About Myself Scale) of 120 obese and 120 nonobese students, ages 8 to 16 years. No significant differences were found on the measures of social and emotional adjustment. However, on the test of self-concept (The Way I Feel About Myself Scale) the obese scored lower (See also Held et al., 1972).

Stunkard and Mendelson (1967a) conducted one-hour interviews with 74 randomly selected obese persons, ranging from 18 to 43 years old (median age of 43), from general medical and psychiatric clinics. They reported that obesity in childhood or adolescence often caused the patients to have warped ideas of their body image. For example, the following are some comments made by obese patients from Stunkard et al. : "I call myself a slob and a pig - I look in the mirror and I say 'you're nothing but a big fat pig'"; or "As soon as I see myself I feel an uncontrollable burst of hatred. I just look at myself and say 'I hate you, you're loathesome'" (p.1296).

Stunkard et al. (1967a) interviewed the 20 most obese girls in grades four through six of a large suburban school and compared them with 20 matched nonobese girls. Three nonobese and four obese girls stated concern about physical appearance; obesity was the focus of this concern in only two of the obese girls. Other physical concerns included braces, dark skin and pigtails. Stunkard et al. (1967a) concluded that any unusual physical characteristic can cause teasing and derogation from peers and obesity, by itself, was not related to any social or body image disturbance. Stunkard and Burt (1967), on the basis of interviews with 10 subjects who had lost weight during adolescence and maintained weight losses 20 years later, concluded that body-image disburbance can occur in adolescence when peers tease them about body weight.

Karpowitz and Zeis (1975) compared 12 to 15 year old nonobese students, with obese students participating in a weight loss program and obese students who declined to participate in a weight loss program, on several personality dimensions. The three groups were amazingly similar. Both obese and nonobese stated exactly the same numbers of problems on the Mooney Problems Checklist. The obese subjects participating in the weight loss program reported approximately 50% fewer distressing problems than either the nonobese or the nonparticipating obese subjects. On a test of maturity (Tasks for Emotional Development) the nonobese scored highest, the participating obese in the middle and the nonparticipating obese scored lowest.

In conclusion, the hypothesis that obese children and adolescents suffer social and emotional consequences of their weight status has not received consistent support. Some overweight adolescents may be less mature, less skilled socially, and may experience discrimination from peers and adults (Coates and Thorensen, 1980a). Obviously, heterogeneity does exist; some overweight adolescents do suffer social and/or emotional problems due to their weight problem and therefore will be helped by losing weight. However, there are also others who may overeat because they are overly anxious (Slochower, 1983).

Treatment of Adolescent Obesity

Traditional Treatment. Recent reviews of literature on the treatment of adolescent obesity have concluded that traditional treatments (i.e., medications, diets, hormones and fasting) are relatively ineffective (Brownwell and Stunkard, 1980; Coates and Thorensen, 1978; Israel et al., 1980; Stimbert and Colfey, 1972). Stunkard's (1958) frequently quoted statement precisely summarizes the gloomy results of traditional treatment for both adults and adolescents: "Most obese persons will not remain in treatment. Of those who remain in treatment, most will not lose weight, and of those who do lose weight, most will regain it" (p.79).

Amphetamines, which have now been banned for use in diet pills, have generally failed to produce the desired effects in the treatment of juvenile obesity and carry with them the dangers of dependency and drug abuse (Committee on Nutrition, 1964). The use of anorectic drugs is also plagued with unwanted side effects: REM sleep suppression, depression upon withdrawal, palpitations, sweating and dry mouth (Douglas and Munro, 1981). Anorectics produce only moderate weight losses (Collipp, Schmierer and Greensher, 1971; Lorber, 1966; Rayner and Court, 1974; Sanborn, Manske and Schlegel, 1983) and their potential for abuse has caused restrictions to be placed on their use (Collipp, 1973; Moody, Wilmore and Girandola, 1972).

The most common traditional method used has been dietary restriction. Unfortunately, all of the better known diets (e.g., Scarsdale diet, Hollywood diet, Last-Chance Diet, the Water Diet) are deficient in essential vitamins and minerals and may be dangerous to use without close medical supervision. Therapeutic starvation has many dangerous side effects (electrolyte imbalance, impairment of adrenal functioning) and most often only operates in a restricted environment, such as a hospital or special camp, and is only effective as long as the person remains in this controlled setting. Furthermore, 80 per cent of all children treated solely by dietetic means will remain fat or regain the weight again (Bierich, 1978). Similarly a review of the hormonal treatment for childhood obesity concluded that there is little reason to recommend their usage and some risk may be involved (Rivlin, 1976).

Surgical procedures include the jejunolileal and gastric bypasses. These techniques have been used effectively in a limited number of cases of massive childhood obesity (Hornberger, 1967; Soper, Mason, Printen, and Zellegher, 1975). However, these procedures should be reserved for extremely obese adolescents in which less radical approaches have failed because of increased mortality rates with both procedures (Bray, 1980; Halmi, 1980).

Energy Balance. From a behavioral standpoint, obesity is considered to be a

result of an improper balance between energy input (i.e., food calories) and energy expenditure (i.e., physical activity). An excessive weight status can be viewed as a consequence of either superfluous input, insufficient energy expenditure or a metabolic problem. However, metabolism problems are quite rare (i.e., 1%) in cases of obesity and this cause can be eliminated by a thorough physical examination by a physician who can rule out hypothyroidism and adrenocortical dysfunction.

A controversial and critical issue within the energy balance model is whether adolescents amass excessive accumulations of body fat due to increased intake or decreased output. Earliest reports cited evidence that obese children consumed significantly fewer calories than their nonobese peers (Cahn, 1968; Huenemann, Hampton, Behnke, and Shapiro, 1974; Johnson, et al., 1956). Similar findings have been reported for adult men and women (Chirico and Stunkard, 1960; Mayer, Roy and Mitra, 1956). It is important to note that these studies used dietary recall as the dependent measure and obese and nonobese persons may vary in their ability to recall all food eaten or to estimate size and amount of food eaten.

Striking differences between obese and normal weight peers in activity levels are well documented (Johnson, Burke and Mayer, 1956; Mayer, 1975; Stefanic, Heald and Mayer, 1959). However, these reports are based upon either self or parental report and therefore, caution must be used in their interpretation.

Several studies, involving a more objective method of analysis of activity level (i.e., motion picture analysis), have confirmed previous findings of differences in activity levels (Bullen, Reed and Mayer, 1964; Corbin and Pletcher, 1968; Mayer, 1968). Bullen et al. (1964) recorded, on film, obese and nonobese adolescents engaged in swimming, volleyball and tennis. Frames were analyzed for per cent of time spent motionless and for energy expenditure calculated on the speed of locomotion and intensity of other movement. Obese adolescents were far less active than the nonobese, even during supervised sports periods. During

volleyball, for example, 90% of observations of obese girls revealed sitting or standing positions, whereas only 69% of observations of nonobese girls showed sitting or standing. Corbin and Pletcher (1968) conducted motion picture analysis of fifth grade students in school. Frame-by-frame analysis revealed that the obese children were significantly less active, both in unorganized and organized activities. However, use of other objective measures (i.e., pedometer and continuous heart rate monitoring) have failed to find differences between the activity level of obese and nonobese subjects (Bradfield, Paulos, and Grossman, 1971; Chiroco et. al., 1960; Maxfied and Konishi, 1966; Stunkard and Pestka, 1962; Wilkinson, Parklin and Pearloom, 1977).

Recently, Waxman and Stunkard (1980) directly measured, via observation by impartial observers, caloric intake and energy expenditure of four boys during meals and at play in several settings. A brother who was less than two years apart in age and an obese classmate served as controls. Obese boys consumed significantly more calories at supper and lunch than matched controls. In addition, Bruch (1970), using a subjective dependent measure, reported that obese children consumed more calories than nonobese children.

It is quite apparent that the issue of which side of the energy equation to manipulate in treatment remains controversial. Mixed results have been obtained from studies employing objective dependent measures. One explanation of these findings could possibly center around the inappropriate generalizability of measurements of activity level of obese adolescents in sports. It is possible that obese adolescents are made to feel self-conscious in these activities because of their performance and/or physical appearance. They may be constantly ridiculed by nonobese peers and, because of this, they may tend not to strive for participation or excellence in sports. Therefore, we cannot conclude whether increased energy input or decreased energy expenditure is responsible for obesity since there is a deficiency in proof so far and the various studies have found conflicting results. Regardless of the causation, decreasing caloric intake and increasing energy

expenditure would both cause weight loss and therefore are important components in any treatment program for weight management.

Behavior Therapy for Adolescent Obesity. The superiority of behavioral versus traditional treatment of adult obesity is a well-established and consistent finding in the literature (Abramson, 1973; Bellack, 1975; Hall and Hall, 1974; Stunkard, 1980; Stunkard, 1983; Stunkard and Mahoney, 1976a; Wilson and Brownell, 1980). The reader is referred to Stunkard (1983) and Wilson (1980) for complete reviews of behavior therapy with adults. Bellack, in a 1977 review, concluded that programs involving stimulus control and supplemental reinforcement "have consistently resulted in clinically significant weight losses" (p.26) and these results have been maintained over brief follow-up periods. Stunkard (1980), in his review, noted that "behavior therapy represents a significant improvement over traditional methods of treatment for mild and moderate obesity" (p.139).

The literature on behavioral treatment of childhood and adolescent obesity, although limited in comparison to the adult literature, seems promising. Behavioral methods have been found to be efficacious in the treatment of childhood and adolescent obesity (Gross, Wheeler and Hess, 1976; Rivinus, Drummond and Combrinck-Graham, 1976), to be superior to a no treatment waiting list control (Aragona, Cassidy and Drabman, 1975; Coates, 1977; Kingsley and Shapiro, 1977; Weis, 1977; Wheeler and Hess, 1976), to be more effective at follow-up than groups including an exchange diet (Weiss, 1977), and to be more effective than either a social-nutrition group or waiting list control (Rotatori and Fox, 1980). Coates and Thorensen (1979) reported the superiority of behavior therapy over a nonspecific treatment group. Reported average weight losses have ranged from 4 to 15 pounds (Aragona et al., 1975; Coates, Jefferey and Stunkard, 1978; Coates et al., 1978; Gross et al., 1976; Kelman, Brownwell and Stunkard, 1979; Rivinus, Drummond, and Combrinck-Graham, 1976; Weiss, 1977; Wheeler and Hess, 1976).

Behavioral Program. According to the behavioral model weight loss can be accomplished by changing two sets of behaviors: those controlling energy intake and those controlling energy output, or activity level. However, it is not sufficient to suggest that a client decrease energy intake and increase energy output. Even though clients may have a strong resolve to change, they may have well established bad habits which are powerful. Behavioral programs aim to decrease energy intake and increase energy output through modification of the stimuli controlling these habits.

Stuart's (1967) classic study of an individualized behavioral weight control program reported dramatic success using control of environmental stimuli for eating and eating responses as a focus of treatment. Since then, most behavioral treatment packages have been based upon the assumption that changes in maladaptive eating behaviors will lead to weight loss.

In a Stuart-type behavior modification program, the first step is to identify both appropriate and inappropriate behavior patterns together with the conditions that are associated with them. Clients are required to monitor all eating (Food Diary) and exercise behavior (Exercise Diary) and their antecedents and consequences. The food diary, a tool used for self-monitoring of food intake, provides an individualized assessment technique which supplies the following information: inappropriate stimuli which cue eating behaviors, the topography of the eating response (i.e., hunger, mood, physical actions while eating, etc.) and the consequences (either negative or positive) which maintain the eating habits. The exercise diary can be used in the same way. One can identify the behaviors and reinforcers which promote physical exercise. This information is then used to set up an exercise contingency management program to increase exercise behavior by increasing the saliency of the cues and reinforcers which encourage exercise while decreasing the saliency of the cues and reinforcers which promote alternatives to physical activity.

Changes are introduced gradually and systematically in therapy, usually in the following sequence: a reduction in cues which trigger eating (i.e., stimulus control procedures) and then changes in the act of eating and modification of the consequences of eating. Next clients identify alternatives to eating. Clients are taught nutritious snacking and how to break behavior chains by using individual alternatives to eating (e.g., read part of a favorite book, take a luxurious bath, etc.). Self-reinforcement plus reinforcement from significant others are also essential components of treatment which are stressed throughout the program.

Parental Participation. Parents exert a powerful influence on the eating and physical activity patterns of their children (Mayer, 1968). It is well documented that children whose parents are obese have a greater likelihood of being obese than children whose parents are lean (Garn and Clark, 1976; Mayer, 1968). These statistics and the reported effectiveness of training parents in the treatment of a wide variety of childhood problems (Graziano, 1977) have prompted investigators to include parents in clinical treatment programs for childhood and adolescent obesity.

Graziano (1977) reported that the utilization of parents in psychological treatment programs for childhood and adolescent problems may be the single most important advance in the field. Graziano goes on to review a lengthy list of problems in which training of parents has been successfully used in psychological treatment programs.

The specific period at which a child becomes an adolescent is not well defined. Parents may have less influence on the older child who is beginning to assert independence but it is often true that parents maintain a great degree of control over their teenagers' environment. Most teenagers are living at home and are financially dependent on their parents. Therefore, adolescents exert limited control over the stimuli in their environment. They may be especially limited in the extent to which they can control cues for eating in their environment, e.g., parents usually buy the groceries, do most of the cooking, and serve most of the meals, etc.

Patterson, McNeal, Hawkins, and Phelps (1967), in conducting social engineering programs for deviant children, reported that unless parent-child interactions were modified, therapeutic success was severely limited. They found in order for any social engineering program to generalize and persist, significant members of the child's environment needed to be taught proper reinforcement schedules. Therefore, children can be influenced by reinforcement received from their parents. These observations clearly suggest that inclusion of parents in any adolescent weight management program is beneficial, especially the parent in charge of food acquisition and preparation.

Several uncontrolled behavioral treatment programs for adolescent obesity have suggested the importance of active family involvement (Rivinus et al., 1976; Gross et al., 1976). Rivinus et al. (1976) conducted one of the first systematic behavioral programs for obese children. Ten black children, from the lower socioeconomic class, ages 8 to 13 and an average of 71 percent overweight, were selected for the program when conventional methods had failed to produce weight loss. Children and mothers met weekly for 10 two-hour sessions. Children recorded intake and adherence to behaviors taught in the program. Parents were instructed in modelling, rewards and contracting. Parents and children were also educated in selecting lower calorie foods, eating balanced meals, and were reinforced for behavioral changes. The average weight loss was 6.2 pounds. Children with normal weight mothers lost substantially more weight than did children with obese mothers. A two year follow-up revealed a decrease in overweight for all children.

Gross, et al. (1976) also trained parents in what seems to be one of the first evaluations of the behavioral treatment of adolescent obesity. Eleven black girls, aged 13 to 17 years (M=14.9) were referred by physicians as part of their membership in a group health plan. The girls were a mean of 39.2% percent overweight with a range of 13.3% to 75.5%. The program consisted of 10 weekly 1.5 hour informal sessions. Weekly sessions involved weighing-in and stress on

weight loss and improved individual eating habits. Maternal positive reinforcement was also an important component of this program. Of 10 girls completing treatment, six lost weight by the end of the tenth session, one maintained her weight, and three gained. Changes ranged from a loss of 24 pounds to a gain of four pounds, with a mean loss of seven pounds. When evaluating the program components and their perceived benefits, family support exhibited the strongest relationship with weight loss.

Using more objective data, Mahoney and Mahoney (1978) found a positive correlation (.92 at 10 weeks and .63 at two years) between weight loss and social support. The social support score was based on family attendance at group meetings, as well as ratings of reports of encouragement and cooperation, averaged over four independent raters.

Aragona et al. (1975) enhanced the efficacy of parent training using contingency contracts to promote weight loss among 5- to 11-year-old girls. Two variations of experimental treatment were used: response cost plus reinforcement and response cost only. Both conditions were superior to the waiting list control as measured by weight losses. The five control subjects gained an average of 0.9 pounds whereas the mean weight loss for the treatment groups was 10.4 pounds.

Coates and Thorensen (1979) also trained parents of their two teenage female subjects in behavior modification principles as part of their total treatment package. Superior results were reported for the behavioral treatment program with equally intensive parental involvement as compared to nonspecific treatment with parental participation. Rotatori et al. (1980) used the parents of their moderately retarded adolescents as lay therapists. They achieved significantly greater weight losses for a behavior therapy than a social-nutrition control group which also had parental involvement.

There have been several studies done which directly test the role of parents in the treatment of childhood and adolescent obesity. Kingsley et al. (1977) found

that weight losses in 10- to 11-year-old children were similar in groups in which only the child attended, only the mother attended, or both the mother and the child attended. However, at 20 week follow-up there was a tendency, which was not significant, for the mother and child group to have regained less weight.

Kelman, Brownell and Stunkard (1979) tested the following three conditions: mother and child attended the session; mothers attended one group and child attended another; or only the child attended. Both short-term and long-term losses were worse for the group in which the mothers and the children attended together.

Epstein, Wing, Koeske, Andrasik and Ossip (1981) used an 8-week behavioral program with three groups of children with overweight parents: parent/child target (parent also losing weight), child target, and nonspecific target. Children in all groups had equal weight losses, but parents who were actively treated lost more weight. At 13 month follow-up parents in the parent-child group had regained their weight, yet their children showed a 100% rate of maintaining their weight losses. Epstein et al. (1981) concluded that parental role modelling during maintenance is not as influential as the child's self-regulation or consistent parental support.

Janzen and Doleys (1981) examined the respective roles of parental modelling, parental reinforcement, and their combination on children's target eating and exercise behavior in three related experiments, involving 16 single-subject replications of a multiple-baseline design, which involved 8 to 12 year olds. The results of these experiments clearly demonstrated a strong and stable effect of parental reinforcement and established the generality of this effect across behaviors and individuals. Within this group behavioral changes were accompanied by weight loss in each subject, with a mean percentage overweight reduction of 11.0%. A weak and short-term effect was reported for parental modelling (i.e., effect was variable across behaviors and individuals). Mean percentage overweight reduction for these subjects was 6.4%. A strong and stable

effect was demonstrated for the combined condition with a mean percentage overweight reduction of 11.0%. However, no evidence was provided for the superiority of the combined procedure over parental reinforcement alone.

Hines (1981) examined the effects of parental reinforcement upon the adolescent's weight loss efforts. Adolescents were assigned to one of three groups: behavior therapy with or without bibliotherapy parent involvement (parent manual) or a control group. The behavior therapy group was a standard 8-week treatment program whereas the control group received nutrition education. Both groups participated in an identical exercise program. Posttreatment group means revealed similar average weight losses for child alone behavior therapy and nutrition control groups. These groups were then combined to form a control group against which the results of the parent group were then compared. Significant differences were found between these groups at posttreatment and six months later, on percent overweight change.

While uncontrolled studies suggested the importance of parental participation, controlled studies later confirmed these findings and supplemented them by comparing different types of parental participation. Parents have been trained in behavior modification techniques, have attended separate group sessions or sessions with their children and may or may not have also been targets for weight loss. Parental reinforcement and/or response cost have been shown to be more effective than a waiting list control. Furthermore, parental reinforcement has been demonstrated to be more effective than parental modelling for long-term maintenance of weight losses , after a behavioral weight loss program. Groups in which the child and parent attend separately or together do not have differential effects, in terms of weight loss, at posttreatment. However, at follow-up combined groups (i.e., mother and child) tend to regain less. Also, separate groups (i.e., either child alone or mother and child separate) have been found to have better short-term and long-term weight losses than groups in which both child and parent attend. Therefore, it is evident that including parents in weight

management programs for children and adolescents is worthwhile. The inclusion of parents enhances the adolescent's weight management efforts because the parent is able to provide effective reinforcement and presumably because the parent is in control of most of the environmental stimuli associated with the adolescent's eating.

Exercise. Behavior therapists have emphasized their efforts on the calorie consumption side of the energy balance equation. A comprehensive review of obesity treatment (Wing and Jeffery, 1979), for example, noted a focus on exercise in less than 10% of available weight control studies. However, the exercise component is important since the amount of caloric expenditure produced by exercising has been found to be directly related to weight change (Epstein and Wing, 1980). Therefore, by decreasing energy input and/or increasing energy output, one can effect a weight change. It would seem that both are beneficial components in any weight management program.

The positive effects of exercise are well documented. Frequently quoted epidemiological findings indicate a relatively strong relationship between regular physical activity and decreased cardiovascular morbidity (Morris, Chave, Adam, Sirey, Epstein, and Sheehan (1973). Furthermore, a regular program of aerobic exercise (i.e., 15 to 30 minutes, three times per week) has been associated with enhanced cardiovascular efficency (i.e., increased oxygen utilization, active and recovery heart rate; decreased blood pressure, etc:) (Boyer and Kasch, 1970), possible reductions in the end points of coronary heart disease (e.g., myocardial infarcation) (Mann, Garrett, Farhi, Murray, and Billings, 1969; Billings, 1969; Wilhelmsen, Sanne, Elmfeldt, Grimby, Tibbin, and Wedel, 1975), as well as improvements in psychological well-being (e.g., lower anxiety and depression) (Greist, Klein, Eischens, Gurman, and Morgan, 1979; Morgan, 1979).

The fitness effects of exercise have also been demonstrated. For example, Dickson, Szparaga and Epstein (1981) reported increased fitness, as measured by Montoye's (1975) submaximal step test, in two treatment groups which had exercise components in their programs.

An important study by Gwinup (1975), the only one which assessed the effect of aerobic exercise alone, reported significant weight losses; a mean of 10.0kg, with a range of 4.5 to 17.3kg. This study provided an insight into the problems of promoting weight reduction, for it took a year to achieve these results and by one year posttreatment 68% of the patients (including all the men) had dropped out of the program. Furthermore, there was no weight loss until their activity exceeded 30 minutes per day of walking or its equivalent.

A recent study supported the inclusion of an exercise component in the behavioral treatment for obesity (Dahlkoeter, Callahan and Linton, 1979). Dahlkoeter et al. (1979) reported superior weight losses (6 kg over 8 weeks) for subjects in a combined exercise and behavioral program over a behavioral-only and an exercise-only group.

Two other studies, however, found no effect: adding exercise to behavioral programs did not increase weight loss (Harris and Halbauer, 1973; Stalonas, Johnson and Christ, 1978). Harris and Halbauer (1973) reported that weight losses produced by adding an exercise program to a behavioral program did not differ from a behavioral program only or an attention placebo group, at posttreatment. However, the 7 month follow-up revealed that the treatment groups lost significantly more weight than the attention control group; and the behavioral treatment which included exercise was more successful. At one year follow-up, Stalonas et al. (1978) found exercise plus a self-control program more effective than self-control alone.

Additional studies have reported exercise as being facilitative in the maintenance of weight losses after a behavioral treatment program (Gormally, Rardin and Black, 1980; Miller and Sims, 1981). Gormally et al. (1980) conducted 7-month follow-up structured interviews with participants of a multicomponent behavioral program. Clients who maintained weight losses were significantly more active than their peers who regained weight. This finding was replicated by Miller and Sims (1981) who reported activity patterns of subjects at one-year follow-up.

Of those who successfully maintained weight loss, 90% were engaging in aerobic activity at least 3 times per week as compared to only 21% of those who regained weight.

A lack of long-term maintenance of weight loss in an exercise program has also been reported. However, this study involved a structured environment (i.e., a special summer camp) and reported initial weight losses but no long-term effects (Parizova, 1982). Parizora (1982) combined a 1700 calorie diet, regular physical exercise (i.e., including all suitable sports, games, walking, etc.) and a programme to teach children and adolescents correct dieting and exercise habits, in a special summer camp. The average body weight reduction was 10.0%. However, upon returning home, body weight mostly increased to initial or even higher values along with further growth in height.

Moody et al. (1972) carried out a 29-week high school exercise program with 28 obese girls which involved walking, jogging and running. Neither the obese subjects or the 40 normal weight girls lost much weight (mean weight losses were 2.2 and 1.2 pounds, respectively). However, both groups showed a reduction in triceps with the obese and normal weight subjects losing 52.5mm and 23.9mm, respectively.

Best long-term adherence rates are for walking (i.e., lifestyle or routine exercise) rather than jogging or swimming (i.e., programmed exercise) (Gwinup, 1975). Several researchers have suggested that an optimum program for weight loss should include a combination of routine activities (e.g., walking up stairs instead of taking elevators, parking at the far end of the parking lot, etc.) and programmed activities (e.g., swimming, jogging, etc.) because of the obvious beneficial effects of both types of exercise (Brownell et al., 1980).

Epstein and his colleagues (1982) at the University of Pitsburgh School of Medicine, compared two exercise programs (i.e., lifestyle and aerobic), with or without diet, assessing weight and fitness changes in 51 obese children (ages 8 to

12). An exercise point economy was instituted which assigned points for aerobic exercises and daily activities depending upon the number of calories per minute the exercise expended. For example, one point was earned for walking up and down four flights of stairs whereas 10 points were earned for playing soccer. Each week groups were assigned the same number of points to earn per day. Lifestyle subjects could earn their points throughout the day choosing among a variety of exercises (e.g., walking, housework, yardwork, recreational sports, etc.). The programmed exercise group chose one aerobic exercise which was done at the same time each day. The diet used a color coded traffic light food system developed to facilitate training in appropriate eating behavior (Epstein, Masek, and Marshall, 1978). Results indicated that although fitness changes, as measured by heart rate recovery using the step test, improved for both groups during treatment, the programmed exercise groups had greater changes. However, six months posttreatment, fitness of the programmed group had deteriorated while fitness of the lifestyle group was maintained. Weight losses for both groups, at posttreatment, were equivalent. However, lifestyle subjects lost more additional weight and maintained their weight loss better than the programmed exercise subjects during maintenance (six months posttreatment) and follow-up (17 months posttreatment). The authors concluded that lifestyle exercise could be used as a way to increase energy expenditure and promote long-term maintenance, independent of diet.

Another study from the University of Pitsburgh compared the effects of diet change, with or without a lifestyle exercise program, on fitness and weight changes in 42 obese children, ages 8 to 12 (Dickson, Szparaga, Epstein, Wing, Koeske and Zidunsek, 1981). Subjects were assigned to one of three groups: diet, diet plus exercise, and a no treatment control. The diet program and point economy for lifestyle exercise were implemented as described previously. Results of six month follow-up showed both treatment groups significantly decreased percentage overweight while the control group increased their weight. Fitness of the treatment groups, as measured by heart rate recovery from the step test,

significantly improved while the control group showed a decrement. Among the treatment groups, the diet plus exercise group showed significantly greater changes in fitness than the diet alone group. Therefore, a behavioral program which improved diet and exercise produced superior weight loss and fitness changes compared to a no treatment control. In addition, the combination of lifestyle change and improving diet resulted in greater fitness changes than diet alone.

Including exercise as a component in weight management programs does appear to have value. Although minimal weight reduction occurs and this may take some time there is evidence that reductions do occur in body weight and fat. Also, the medical, psychological, and fitness benefits of exercise are well documented. In summary, the superior effects of programs which combine behavioral and exercise components have been demonstrated only in one controlled study. However, several studies have reported long-term maintenance effects when exercise is combined with behavioral techniques. Also, several researchers have incidentally demonstrated better maintenance effects for more active subjects, after completing a behavioral program, up to as long as one year posttreatment. Lack of maintenance has also been reported in a combined diet and exercise program. However, this program involved a structured environment, which may account for the lack of maintenance.

More recently, research has been concentrating on the type of exercise (i.e., lifestyle or programmed) to be included in weight management programs and whether or not a diet should also be included in combination with exercise. Several researchers have suggested using both lifestyle and programmed exercise because of the obvious benefits of both. Greater maintenance of fitness effects and weight losses have been found for a program which used lifestyle exercise. However, programmed exercise produced more significant increases at posttreatment. Also, a program which combined lifestyle changes and improved diet resulted in greater fitness changes than diet alone. Therefore, it seems

worthwhile using both lifestyle and programmed exercise because of their long-term (i.e., weight loss maintenance) and short-term (i.e., fitness) benefits, respectively. Also, providing the client with an improved diet in combination with both types of exercise should yield optimal results.

Nutrition Education. The nutritional model of obesity predicts that weight loss will result from the provision of information based on principles of good nutrition, or more specific guidelines organized as a diet. The popular fad diets are deficient in essential vitamins or minerals and therefore, may be dangerous when used without close medical supervision. Because the potentially essential missing vitamins and minerals are necessary for normal growth and development restrictive or special diets may not be appropriate for adolescents. Furthermore, it has been demonstrated that 80% of children who are treated by diets will remain fat (Bierich, 1978).

However, within the same model, dietary advice in the form of nutrition information and education is an element of many behavioral programs. Emphasis is usually placed on balancing the food groups (i.e., eating by Canada's Food Guide). Nutrition information is generally aimed at teaching the individual to limit energy intake, without sacrificing variety or intake of essential nutrients.

Levitz and Stunkard (1974) used nutrition education as a control group and demonstrated higher attrition rates and lower weight losses in this group than the behavior modification groups. However, Hines (1980) reported a nutritional control group to be as effective, in terms of change in percentage overweight, as a child alone behavior therapy group, when compared to a child plus parent group.

A social nutrition group, which met to discuss weight loss, has been found to be less effective than a simplified form of behavior therapy, in the treatment of obesity in moderately retarded adolescents (Rotatori et al., 1980). Findings on the efficacy of nutrition information alone suggests that it must be accompanied by self-monitoring to have an effect upon weight loss (Mahoney, 1974; Romanczyk,

Tracey, Wilson and Thorpe, 1973). Furthermore, Bellack, Rozensky and Schwartz (1974) found that nutrition information had to be accompanied by both self-monitoring and therapist contact to achieve weight loss.

In general, nutrition education has not been shown to have an effect when compared to behavior therapy. In one study alone it has been shown to be as effective as a child alone behavior therapy. In addition, it must be accompanied by self-monitoring and therapist contact to effect changes in weight.

There is a lack of studies which determine the relative efficacy of nutrition education in traditional behavior therapy with adolescents and children. Because of the aforementioned problems with using diets, with the adolescent population, and the lack of control they exert over their eating environment, it seems more appropriate to provide nutrition information than to restrict caloric intake via a specific diet. Also, if the recent exercise literature is any indication, one may predict that nutrition education plus both types of exercise will yield superior results.

Problems in Behavioral Treatment of Obesity

Measurement Problems. The selection of the dependent variables in obesity reaearch has been a constant source of discussion (Abramson, 1977; Bellack and Rozensky, 1975; Brownell, 1982; Brownell, 1982a; Edwards, 1978; Feinstein et al., 1959; LeBow, 1977). The discussion revolves around the question of which measures accurately reflect changes in obesity.

Measures of absolute body weight are most commonly used. Most researchers report the actual number of pounds lost. Total pounds lost has the advantage of comparability to previous research. However, it fails to account for differences amongst subjects in height, frame size, degree of obesity, or initial weight. The same weight loss in two people of different weights may not represent the same degree of treatment effectiveness; the effect of a 20 pound weight loss on an individual who is 40 pounds overweight is much greater than on a person who is 100 pounds overweight. Therefore number of pounds lost should be qualified and this can be done through its combination with measures which do account for these individual differences.

Percent overweight is calculated by subtracting normed from actual weight, then dividing by normed weight and multiplying this value by 100. This measure takes into account actual and normed weight (i.e., average weight for a person of that gender and age to the nearest month) and actual weight and it expresses weight change in a way that permits one to directly compare individuals. However, percentage overweight does not necessarily reflect body fat.

The body mass index ($weight/height^2$) and ponderal index ($height/\sqrt[3]{weight}$) equate for differences in height and are used in the epidemiology literature. However, both are difficult to interpret and offer no particular advantage to the other measures mentioned.

Categorical weight loss, that is, listing the number of subjects losing 20, 30, or 40 pounds, suffers from the same problems as absolute weight change. However, it is sometimes used to compare results across studies.

The weight reduction index (Feinstein and Irvington-on-Hudson, 1959) takes into account weight, number of pounds overweight, pounds lost, and target weight and is a method for reporting weight change data (Jeffery, 1975; Wilson, 1978). This index, initially proposed by Feinstein (1959) is calculated as follows:

$$\frac{\textit{Weight Loss}}{\textit{Surplus Weight}} \times \frac{\textit{Initial Weight}}{\textit{Target Weight}} \times 100$$

This index is not widely used in obesity research although Wilson (1978) supported its widespread use in weight studies.

Edwards (1978) reported results on a weight index (WI) which accounts for the expected developmental growth in children by also considering the child's actual height and normed height for the child's age group. This weight index, defined as:

$$\frac{\textit{Actual Weight}}{\textit{Actual Height}} - \frac{\textit{Normed Weight}}{\textit{Normed Height}}$$

permits a more accurate reflection of weight and height status in children than percentage overweight since it permits one to correct for deviations between actual and normed height. Also, by obtaining the two endpoint weight indexes using age to the nearest month at the time of measurement, the derived change score takes into account expected growth in children and adoloescents. Few studies have used this index and therefore comparability across studies is limited.

If one's goal is to document the efficacy of specific procedures in alleviating

a refractory problem, the investigator must attempt to demonstrate that the subject experiencing them is benefitted by a loss of body fat also (Baer, Wolf and Risley, 1968). Weight change data alone do not provide a measure of the amount of fat that is reduced since it includes both the client's fat and fat-free weight (Bellack, 1977; Franzini and Grimes, 1976; LeBow, 1977). For example, Johnson, Mastrapaitro and Wharton (1972) reported that 20 adults became significantly thinner, as determined by skinfold measurement, without significant losses in weight. The authors would not have found a difference if weight data alone had been gathered.

As with body weight, there are several methods of determining body fat. The only exact method to determine total body fat in living subjects is densiometry via hydrostatic weighing with simultaneous measurement of air in the subject's lungs. Obviously, complete immersion of the body in a water tank is impractical. Such precise data are usually not necessary in the clinical setting. However, skinfold thickness norms are available (National Center for Health Statistics (NCHS), 1974) and can be taken reliably after brief training (Franzini et al., 1977).

Skinfold thickness obtained from one or more body sites to measure body fat represents the most practical and effective method of assessing body fat (Grimes and Franzini, 1977). However, in a clinical setting it may not be practical to measure body fat from all proposed skinfold sites since some may be quite intrusive measures.

The triceps skinfold measure seems to be the preferred skinfold site for most researchers and there are recent available norms for triceps skinfold measures for adolescents aged 12 to 17 years (NCHS, 1974). This site is readily accessible and ensures minimal intrusion. Seltzer and Meyer (1965) argue for adopting just the triceps skinfold as the most convenient and representitive datum for defining and gauging the degree of an individual's obesity. Pett and Ogilvie (1956) also cited the convenience of using the triceps skinfold muscle site.

Franzini et al. (1976) advocate the use of triceps skinfold measurement because it can be easily transformed to a percentage of body fat. They propose the abandonment of measurement of weight in favor of triceps skinfold thickness since obesity is usually viewed as an excessive accumulation of fat. Many leading researchers suggest one use a measure of body fat along with measures of body weight so that one has estimates of body fat and total body mass (Bray, 1976; Brownell, 1982; Mahoney, Mahoney, Rogers, and Shaw, 1979; Rogers, Mahoney, Mahoney, et al., 1980; Wilson, 1978).

Many investigators agree that the most thorough means of assessing weight reduction is to report measures of body weight and body fat (Bray, 1976; Brownell, 1981b; Brownell, 1982; Rogers, et al., 1980).

The increasing trend towards a combination of fat and weight dependent measures represents a refinement in the area. Reporting changes in both body weight and body fat may allow one to determine what is actually happening more clearly. Some clients may not lose absolute body weight but decrease their body fat. Using merely one of the skinfold thickness skinfold sites on a person's body as a measure of their overall body fat may not be precise since a person's fat deposit varies in its distribution both within and between persons. One can at least determine the direction of change in body fat. For example, after treatment one would expect a decrease in body fat at triceps site. The use of multiple dependent measures in weight reduction research provides a maximum of information so that one can more clearly determine whether the targeted effect has been achieved.

Maintenance. A salient problem in the behavioral treatment of obesity is that of maintenance of weight loss after treatment. In general, patients tend to regain weight which was lost during treatment and further weight losses rarely occur following the end of formal treatment (Brightwell and Sloan, 1977; Foreyt, Goodrick and Gotto, 1981; Stunkard and Mahoney, 1976; Stunkard and Penick, 1979a; Wilson et al., 1980) even though the majority of subjects do not reach

their goal weight during treatment. Stunkard et al.'s (1979a) concluding statement, after reviewing all studies which had follow-ups of at least one year after a behavioral weight control program, summarizes the state of the art: "...clinically important weight losses achieved by behavioral programs for obesity are not well maintained..."(p.801). In contrast to the vast amount of work on the initiation and generalization of behavior change, study of its maintenance has been a neglected area of behavior modification for obesity (Stunkard et al., 1979a).

One technique which has been widely used in an attempt to facilitate maintenance has been the "booster" session. Booster sessions usually entail a review of the techniques taught during the treatment program and are generally given approximately three months after the formal treatment program has terminated. Domke and Lando (1983) failed to demonstrate the long-term efficacy of booster sessions nine months after treatment, although booster subjects fared significantly better in the first three months after booster sessions than non-booster subjects.

Ashby and Wilson (1977) examined the effect of booster sessions on long-term maintenance 12 months after treatment. They varied the frequency (once every 2 weeks or once every month) and type (behavioral versus non-specific) of booster sessions. They found no support for boosters as effective nor any difference between booster types. In a replication of their own study they again found no supportive evidence. They concluded that the contribution of booster sessions in the facilitation of maintenance of weight loss is doubtful.

Cameron, Horlick and Shlepel (1983) postulated that different people may need different amounts and types of contact after formal treatment and that an individual may like to alter the nature (i.e., face-to-face versus telephone contact) and/or frequency of contact over time. They proceeded to test this by assigning half of their subjects each to either "ad-lib" or no contact, traditional booster condition after a standard 8-week behavioral program. No significant difference

was found between no contact and contact option subjects over a 12 month period.. Since the individualization of booster sessions did not facilitate maintenance, it does not seem likely that booster sessions are the answer to the maintenance problem in the behavioral treatment of obesity. Similar views have been expressed by a variety of researchers in the field (Ashby et al., 1977; Hall, Hall, Borden and Hanson, 1975; Kingsley and Wilson, 1977)

Several techniques have been proven to be effective in facilitating weight losses after a behavioral program for obesity. Carroll and Yates (1981) demonstrated the superiority of stimulus control plus a behavioral program over a behavioral program without stimulus control procedures in effecting weight loss in the period following termination of therapy. The behavioral program included social pressure and instruction in self-monitoring, self-reinforcement, self-punishment, response chaining, substitution, nutrition and exercise. The stimulus control plus other behavioral techniques group experienced significantly more obesity reduction in the 8 months following therapy in terms of kgs lost and change in the weight reduction index (WRI). The stimulus control + other behavioral techniques and behavior therapy groups lost an average of 2.5 kgs and 0.8 kgs, respectively, after the treatment. They also reduced their WRI by 20.5mm and 2.5mm, respectively. Stimulus control procedures are an integral part of most behavioral programs for obesity and have the potential of providing durability of weight losses after the treatment program.

Several researchers have found that the most successful weight losers and maintainers reported adhering to behavioral procedures taught during the treatment program and being more physically active (Brownell and Stunkard, 1980; Graham, Taylor, Howell and Siegel, 1983).

Another technique which has been proven to be successful in maintaining weight losses in the adult literature has been spouse involvement. Subjects whose spouses participated in treatment did significantly better in terms of weight loss and maintenance (Brownell, Heckerman, Westlake, Haynes and Monti, 1978;

Mahoney et al., 1978; Murphy, Williamson, Buxton, et al., 1982). Also, as discussed previously, several studies with adolescent populations suggest that parental participation augments behavior therapy. Therefore, it seems quite plausible that inclusion of a parent (i.e., especially the food preparer since adolescents are not in control of their eating environment) in the adolescents' weight management program will facilitate both weight loss during treatment and maintenance of the weight losses posttreatment.

Maintenance of weight losses after behavioral treatment for obesity is a rarity. Booster sessions, the most thoroughly investigated maintenance technique, have had little success. Subjects lose weight during behavioral treatment programs and tend to regain after the formal treatment program is terminated. Stimulus control procedures have been found to facilitate maintenance effects after a behavioral weight loss program in one study. Spousal involvement has been found to be effective in producing maintenance effects in several studies. Several researchers have also noted that successful losers and maintainers report being more physically active and adhering to the behavioral procedures taught in the program. It is evident that more research is needed into facilitation of maintenance after behavioral treatment for obesity.

Present Study

It is well known that obesity is a common problem among adolescents today. It has been found that the chances for successful weight reduction are much greater before or during adolescence than during adulthood (Stunkard et al., 1967). The numerous medical, social and emotional consequences of being obese continue into the adult years. This suggests that successful maintained weight reduction should be more efficient from a preventative viewpoint if it is undertaken before or during adolescence.

Although there is a voluminous literature on the behavioral treatment of obesity, there are several obvious deficiencies. As mentioned previously, a major problem of concern is the maintenance of weight losses following treatment. Thus, more research is needed into methods to facilitate maintenance of weight losses after the formal treatment has been completed.

Although weight losses are usually achieved in behavioral programs for obesity, rarely have they been shown to be continued. As well, most people do not reach goal weight during treatment. Various researchers have attempted to deal with the maintenance issue in the behavioral treatment of obesity with minute success. The lack of success in previous studies suggests that one should be prepared for negative results. However, because of the failure of previous studies in producing maintenance effects, research on maintenance in the behavioral treatment of obesity presents a challenging area of investigation.

From the present review, it can be concluded that the major and most frequently used technique which has attempted to produce maintenance effects, contact via a booster session, after behavioral weight loss programs, has been unsuccessful. Researchers have varied the frequency and type of booster sessions as well as providing "ad-lib" booster sessions, without success.

It appears that clients lose weight in behavioral treatment programs. However, termination of treatment leads to cessation of weight losses and usually to weight gain. It would seem that continued regular contact with the therapist, for several months after the formal program, would foster maintenance assuming that therapist contact is at least partially responsible for gains made during the treatment program. The easiest method of maintaining contact with clients is via telephone. Telephone contact is relatively cost and time effective and convenient. Another important aspect worthy of consideration is the abruptness of reduction of contact in previous attempts to produce maintenance. Gradually weaning clients off contact after the formal treatment would seem to provide a means of going from intensive contact during the program to gradually less and less after

the behavioral program. Another means of fostering maintenance in the adolescent population would be to maintain and gradually phase-out contact with a significant other (i.e., a parent). Also, a recent study demonstrated that subjects who received a weaning procedure lost significantly more additional weight at 6-week and 12-month follow-ups than did subjects who did not (Perlow, Ribordy, and LaVome Robinson, 1983).

The treatment package which has been shown to be most effective involves behavioral, nutritional and exercise components. The superiority of behavioral over traditional treatments of obesity is a well established finding. Also, nutrition education and exercise have both been found to be useful but not sufficient components of weight reduction programs if used separately. Furthermore, the positive effects of exercise makes it a very cost-effective component to include in any weight management program. In addition, the inclusion of parents in adolescent programs for obesity has also proven to be an effective program component and is worthwhile since the adolescent is not completely in control of his/her eating environment (i.e., shopping, preparing meals, etc.). Therefore, it seems most appropriate that an optimum treatment program will involve all techniques which have been shown to be effective in producing weight losses.

Ideally follow-up measures would be taken at 12 months posttreatment to ensure long-term maintenance effects were present. Wilson (1978) and other researchers in the area have strongly recommended follow-ups of at least 12 months for behavioral obesity programs to be classified as acceptable treatment programs. Without follow-ups of at least 12 months, studies are not considered to have demonstrated long-term effects. Brownell (1982) has noted that one of the many dangers of overemphasizing long-term studies in behavioral treatment of obesity is that "the necessity of long-term studies will discourage young researchers and graduate students from studying obesity" (p.833). If the maintenance procedure has an effect, it will be detected within 6 months since most subjects tend to discontinue losing weight or begin to regain at program

termination. Due to this reason and theses requirements follow-ups will be conducted at three and six months after the treatment program. In addition, a one-year follow-up is also planned.

As indicated in the review of outcome measures given above the most useful estimates of success in obesity research are: absolute pounds lost, change in percentage overweight, Edwards weight index (WI) (1978), and the triceps skinfold. Absolute pounds lost provides comparability to previous research. Percentage overweight allows one to directly compare weight change in individuals. The weight index (Edwards, 1978) provides a correction factor for individuals who deviate from height norms. Also, when calculated at two different occasions this index yields a change score which takes into account expected growth of children and adolescents. Triceps skinfold is the most useful fat measure because of accessibility, comparability and lack of intrusiveness compared to other fat estimates. Also, there are recent NCHS weight, height (NCHS, 1974) and triceps (NCHS, 1977) norms available for adolescents aged 12 to 17.

The present study will attempt to produce maintenance of progress made in a standard 8-week behavioral weight loss program by providing adolescents and their parents with regular, minimal contact, which will be gradually reduced, for six months after the program has been completed.

It is predicted that the effect of maintaining telephone contact with subjects will be to increase or stabilize their weight and fat losses. It is predicted that at 3-and -6 months posttreatment M subjects will show greater weight and fat losses and greater adherence to weight management behaviors than NM subjects. Subjects who lose weight will improve in self-esteem. Consequently the M group will have higher self-esteem than the NM group. Therefore, it is predicted that the M group, because of minimal posttreatment contact procedures will maintain, or continue to make, progress made during treatment whereas the NM group will not.

METHOD

Subjects

Thirty-one subjects, six males and 25 females, between the ages of 12-16 were solicited by a newspaper advertisement (Appendix A) and a memo distributed to a variety of health professionals (pediatricians, public health nurses, and dieticians) and to school guidance counsellors within the St. John's area. It was intended that all subjects be required to be at least 20% overweight relative to average weight for their age, to the nearest month, given by U.S National Centre for Health Statistics (1977). However, two subjects were included who were less than 20% overweight (14% and 18%). Adolescents were required to have a parent willing to read weekly handouts and complete weekly homework assignments. Subjects were further required not to be enrolled in any other weight loss program or have any medical contraindications to losing weight. Subjects needed clearance from their family doctor to participate (Physician Permission Form, Appendix B). Subjects were not included who stated quite clearly that they only desired to participate because of external pressure (e.g., "I'm only doing this because my parents want me to"). Subjects who failed to give evidence of having any personal goals towards improved physical well being were also excluded.

Prospective subjects responded to the advertisement by telephone. During the initial telephone call they were given an outline of the program. Forty-eight telephone calls were received. If they were interested in the program and met the requirements they were assigned an interview time. All subjects were required to attend this screening interview with an interested parent at which the entire program was explained to them and necessary information was obtained. They were asked to deposit $25, $20 of which was to be reimbursed contingent upon attendance and homework completion and $5 of which was used to purchase necessary paper supplies. Each teenager was informed of the necessity of keeping

a daily food diary and was required to state at least two positive reasons for wanting to lose weight. Parents were informed about the weekly telephone call from the therapist and were asked to state one 15 minute period during the day which would be most convenient for them to receive the therapist's telephone call. Parents were also asked to have bathroom scales available for their adolescent.

The client, parent, and group leader signed a contract which specified the responsibilities of each (Appendix C). Clients completed a Self-Esteem Inventory (Appendix D) and a Nutrition and Exercise quiz (Appendix E). A Weight History form (Appendix G), Physician Permission form (Appendix B), and one week supply of food diaries (Appendix G) was given with instructions for their completion and return.

Therapists

Six therapists conducted the 8-week treatment group. A senior clinical psychology graduate student (the author) acted as group leader and presented the behavioral and nutritional lectures. The group leader also discussed food diaries and weighed individual adolescents. The group leader's experience, in addition to practicum and internship training in the M.Sc. Clinical Psychology program, consisted of assistance in three Teenage Fitness Clinics while a senior honors undergraduate in psychology, plus group leader of two additional teenage fitness clinics while a graduate student, over a three year period. The assistant therapists included two junior clinical psychology graduate students and three senior psychology undergraduates who had received a brief training course from the author. The assistant therapists also reviewed food diaries and weighed the adolescents. All therapists exercised with the adolescents weekly.

Dependent Measures

The major outcome measures are change in body weight, change in percentage overweight, change in the weight index (Edwards, 1978), self-esteem, and triceps skinfold. In addition, subjects' use of the behavioral techniques taught in the program is assessed via a Likert-like scale at 3- and 6-month follow-ups.

Adolescent's weight is measured, using a Detecto-Medico balance beam scales, to the nearest one-quarter pound.

Percent overweight expresses weight as a function of the adolescent's present normed weight. Normed weights are determined at Week 1 of the treatment program by referring to NCHS growth charts (NCHS, 1977). These tables provide weight, at the 5th-95th percentiles given the subject's age and gender. Normed weight is determined, from the NCHS age-weight tables, by obtaining the gender and age, to the nearest four months, of the adolescent whose normed weight is desired. Within the appropriate gender table one determines the proper 4 month age span for that adolescent. Weight for this age span, at the 50th percentile, is the adolescent's normed weight. Normed weight is recalculated at the 6-month follow-up. The adolescent's percentage overweight is calculated by dividing the difference between the present and normed weights by the normed weight and multiplying by 100.

Edward's (1978) weight index is calculated by dividing normed weight by normed height and subtracting this value from actual weight divided by actual height. Individuals of average weight and height, for their age and gender, have a weight index of 0. Overweight and underweight are indicated, using the weight index, as deviations from 0. Underweight subject's have a weight index of less than 0 whereas overweight subject's have a weight index greater than 0.

Self-esteem is measured by administering a 58-item self-esteem inventory (Coopersmith, 1967) (Appendix D) which asks subjects to indicate whether a particular statement is or is not descriptive of their personality (e.g., I'm pretty sure of myself). Coopersmith (1959) reported test-retest reliability of .88 after a 5-week interval for this scale. The questionnaire consists of 26 positive and 32 negative items. A maximum score of 58 is possible; a high score indicating high self-esteem.

To determine the extent of adherence subjects rate their degree of usage of the 14 techniques taught in the program on a 4-point Likert-type scale (4=always use the technique, 0=never use the technique)(Appendix EE). A subjects' score reflects the frequency and number of techniques used. A maximum score of 42 is possible; a high score indicating high adherence to techniques taught in the program.

Triceps skinfold is measured using Lange skinfold calipers. An average of two readings is taken to ensure stable readings (Mayer, 1968). The reader is referred to Grimes et al. (1977) for a detailed account of the triceps skinfold procedure.

Procedure

Subjects were randomly assigned (with any special requests for a certain day taken into consideration since the sessions were held on two separate days; Monday and Wednesday of the fall and winter terms of the school year) to two groups of 15 and 16 subjects respectively for the standard 8-week treatment program. Each group contained three males and 10 females. Twenty-six subjects completed the 8 week treatment program. During the first four weeks of the treatment program 18 make-up sessions were scheduled due to absentees. After Week Four, subjects did not have an opportunity to make up missed sessions. However, several subjects came in to be weighed and to receive food diaries and

parent's manual for the missed week. At termination of treatment subjects were randomly assigned to either maintenance (M) ($\underline{n}$=13) or non-maintenance (NM) ($\underline{n}$=13) groups with several restrictions. In order to ensure equality of posttreatment groups subjects were categorized as low, medium or high weight losers on the basis of their performance in the treatment program. Subjects in the high weight loss group (range: -7.0 to -21.60) lost 7 pounds or more and 8 people satisfied this criterion. Medium weight losers lost 0.25 pounds or more (range: -.25 to -5.50) while low weight losers (range: +.50 to +8.25) all gained weight; there were 8 and 10 subjects in these groups respectively. Equal numbers of each sex were assigned to M or NM groups. In order to ensure that the three weight-loss categories were equally represented in M and MN groups, several group members had to be switched between these two groups.

A series of one-way analyses of variance revealed no significant differences, at posttreatment, between M and NM groups on any of the weight or fat measures (Table 1). Also, M and NM subjects did not differ, in terms of self-esteem, at posttreatment (Table 1). Table 2 includes means, standard deviations and ranges for all dependent measures for M and NM groups.

Adolescents in both groups received an identical treatment program consisting of behavioral, nutritional and exercise components which was of 8 weeks duration. Before elaborating on the post program treatment procedures between M and NM groups, a description of the eight week standard program will be presented.

Triceps skinfold measurements (Lange skinfold calipers) and height, using the height attachment of the Detecto-Medico balance beam scales, were taken at first (Week 1) and last (Week 8) treatment sessions. At weekly sessions, clients were weighed (Detecto-Medico balance beam scales), had homework and food diaries checked and collected, and had their money refunded before the beginning of the day's behavioral lesson. While discussing the week's food diaries, therapists were positive and reinforced good eating and nutrition habits. After discussing

Table 1. Analysis of Variance on Treatment Measures for Maintenance and Nonmaintenance Groups

Pounds Lost

Source	df	SS	MS	F
Between Groups	1	0.5	0.0	0.0
Within Groups	24	1584.0	66.0	
Total	25			

Posttreatment Weight

Source	df	SS	MS	F
Between Groups	1	350.8	350.8	0.8
Within Groups	24	10665.9	444.4	
Total	25			

Ideal Weight

Source	df	SS	MS	F
Between Groups	1	62.1	67.1	0.7
Within Groups	24	2214.8	92.3	

Percentage Overweight Change

Source	df	SS	MS	F
Between Groups	1	0.0	0.0	0.0
Within Groups	24	1366.9	57.0	
Total	25			

Percentage Overweight at Posttreatment

Source	df	SS	MS	F
Between Groups	1	770.1	770.1	1.2
Within Groups	24	16067.8	669.5	
Total	25			

Table 1. (Cont'd)

Change in Weight Index

Source	df	SS	MS	F
Between Groups	1	0.0	0.0	0.8
Within Groups	24	1.1	0.0	
Total	25			

Posttreatment Weight Index

Source	df	SS	MS	F
Between Groups	1	0.0	0.0	0.2
Within Groups	24	3.8	0.2	
Total	25			

Posttreatment Triceps Skinfold

Source	df	SS	MS	F
Between Groups	1	7.0	7.0	0.1
Within Groups	23	1533.0	66.7	
Total	24			

Posttreatment Self-Esteem

Source	df	SS	MS	F
Between Groups	1	228.0	228.0	2.2
Within Groups	24	2464.0	102.7	
Total	25			

Table 2. Means and Standard Deviations for Treatment Outcome for Maintenance and Nonmaintenance Groups

	Maintenance (N=13)			Nonmaintenance (N=13)		
	M	(S.D)	Range	M	(S.D)	Range
Pounds Lost	-3.3	(8.2)	8.3 - -18.8	- 3.0	(8.1)	7.5 - -21.6
Change in Percentage Overweight	-2.6	(7.7)	8.7 -- -15.1	-2.5	(7.4)	6.8 - -21.1
Change in Weight Index	-0.12	(0.28)	0.13 - -0.95	-0.05	(0.12)	0.12 - -0.34
Posttreatment Triceps	32.8	(9.4)	15.0 - 44.0	31.7	(6.9)	19.0 - 45.0
Posttreatment Weight Index	0.82	(0.43)	-0.04 - 1.56	0.75	(0.36)	0.27 - 1.47
Percentage Overweight at Posttreatment	55.5	(25.5)	22.9 - 105.5	44.6	(26.2)	11.8 - 104.9
Weight at Posttreatment	172.1	(20.6)	145.5 - 205.5	164.8	(21.6)	131.0 - 204.5

Note: - indicates loss

food diaries each adolescent set an individual weight goal for the next week. Also, beginning at Week 3, the therapist plotted each adolescent's weight change for that week on their Individual Weight Loss Chart (Appendix H).

The behavioral lesson of the week was followed by the nutrition topic of the week. The behavioral program was a package program based upon Kelman and Brownell's (1979) manual for adolescent programs the major portion coming from Kelmann's manual.

A 15 minute exercise period followed in which each exercise was completed in a specified time period. The exercise program used was a well established series of standard programmed exercises (Appendix I). In Week 1 exercise circuits were established by obtaining adolescents' maximum performance on each exercise, in a specified time period of time (see Appendix I). In addition to the weekly exercise period, adolescents were encouraged to do daily half the maximum of each of the exercises that they had done in establishing their personal circuit.

Each session lasted approximately one-and-one-half hours. At the end of each session, clients were presented with new food diary forms, the appropriate unit of the Parent's Manual (Appendix J) the weekly Maintenance Behavior Checklist (Appendix K) and homework for that week. Parent homework included several questions on the Parent Manual material for that week to ensure parental participation.

The therapist telephoned the teenager's parents two days after each treatment session. Parents were encouraged to discuss any problems with their child's program or a specific problem the child mentioned, methods to cope with these problems, and any questions about the weekly Parent Manual. Parents were encouraged to be supportive and to reinforce appropriate behavior.

Week 1

Food Diaries (Appendix G) and Physician Permission forms (Appendix B) were collected. Exercise circuits were established (Appendix I) using a handheld stopwatch, and Exercise Diaries (Appendix L) were distributed. The group leader discussed and resolved any problems with the completion of any forms.

Changing the act of eating was the behavioral lesson for Week One. Homework included putting down eating utensils between bites and taking a break during the meal. The nutritional lesson included a discussion of Canada's Food Guide and the group was asked to name some foods in each group. Each child received a copy of Canada's Food Guide and completed "The Eating Survey" (Appendix M) and the Teenager Food Management Questionnaire (Appendix N). This was followed by small and large group discussions.

Parents received introductory materials, in chapter 1 of the Parent Manual on: behavior change, the rationale for the behavioral approach to weight control, a description of the behavioral model and its principles, how to shape new eating patterns, the effects of modelling on behavior and a list of the teenagers new behaviors for Week One. Four homework questions were assigned and the child returned these assignments the following week.

Week Two

This week's behavioral lesson was entitled "The Importance of Energy Expenditure". The lecture included a discussion on: energy balance/imbalance, basal energy, the body's energy conversion system and the benefits of physical activity. Clients were given suggestions for increasing both programmed and routine exercises. The programmed exercise is a well-established circuit developed elsewhere (Appendix I).

Parents received a handout covering: the importance of exercise, the energy

balance model, misconceptions and facts about exercise, how our society discourages exercise and movement, programmed exercise, routine exercise, and the teenagers' new behaviors for Week Two.

The nutrition lecture involved food classification according to Canada's Food Guide. Each child took one day of another child's food diary (anonomously), at random, and rated it according to the recommendations of the Canada Food Guide on the Score Sheet For My Food Record form (Appendix O) and a group discussion followed.

Week Three

At this session, each child was informed of his/her normed weight, according to NCHS growth charts (NCHS, 1977). Individualized graphs (Appendix H), which were charted with the weight loss goal of one pound per week, were distributed. Week Three was the first of three weeks focusing on cue elimination. The behavioral lesson included a discussion of the locations each child frequently uses for eating. Homework assignments included: eating only in their designated eating place, changing their regular seat at the table, eating at the same time each day and avoiding engaging in activities such as watching TV or reading while eating.

The nutrition lecture focused on the factors influencing eating behavior (i.e., social, cultural, economic, religious, etc.). Clients were given a list of foods and classified them according to Canada's Food Guide by completing the Classification questionnaire (Appendix P). Teenagers also completed an Energy Quiz (Appendix Q) in which they were asked to compare the caloric value of pairs of foods. A discussion of both questionnaires followed.

Parents material covered the following topics: awareness of their child's eating patterns, internal versus external signals to eat and a list of teenagers' new behaviors for Week Three. Parents were asked to eat only at one place and at the same time each day. Four homework questions were assigned.

Week Four

Week Four's behavioral lesson dealt with cue elimination, specifically elimination of the cues intrinsic to the food itself. Clients were taught to make the act of eating a conscious one by requiring them to eat only food they had asked for. In order to make small quantity of food appear larger, they were instructed to use smaller plates and utensils. They were taught to reduce the number of cues associated with eating by: removing serving dishes from the table immediately after a meal and storing food out of sight.

The nutrition lesson included a discussion of Canada Food Guide regulations which included: eating at least two vegetables daily, eating whole grain foods, including a variety of foods from each of the four food groups, eating a nutritious breakfast daily, eating at regular intervals and choosing nutritious snacks.

Parents were asked to assist the child in locating a small plate and utensils and to set these smaller utensils in their child's eating place. Parent's handout included the following topics: your child's weight control program and your attitude, the ABC's of behavior, and the teenager's new behaviors for Week Four. Parents were given the assignment of modelling leaving the table after meals, not offerring snacks to their teenager, removing serving dishes from the table, and storing food out of sight. Five homework questions were assigned.

Week Five

Cue elimination was the focus of the behavioral lesson again this week. Teenagers were instructed to: set some food aside to be thrown away, divide their meal into two portions, to eat only what they need, and to keep food out of sight.

This week's nutritional lecture focused on myths about dieting and

nutrition. Teenagers completed the Myths About Dieting and Nutrition Quiz (Appendix R) and a discussion followed. A handout was distributed giving explanations for the correct answers.

Parents were assigned the following tasks: not asking their child to be a food dispenser, clearing leftover food directly into the garbage, and always leaving some food on their plate. Parents homework included five questions on material in the manual.

Week Six

Week Six's behavioral lesson was concerned with snacking. Clients were taught to choose nutritious snacks. Homework involved applying all of the previous techniques to snacking e.g., putting down the fork between bites, snacking only at the designated eating place, leaving some of the snack behind.

The nutrition lecture included hints on snacking and preparing foods. Teenagers received handouts on Eating Away From Home (Appendix S) and Hints for Preparing Meals (Appendix T). A discussion followed in which clients were asked to suggest new ways of coping with these situations. Clients received additional handouts entitled Hints For Eating Away From Home (Appendix U) and a list of the Energy Values of Some Common Fast Foods (Appendix V).

The parent's handout included information on snacking and the teenager's new behaviors for Week Six. Parents were asked to: snack only at their designated eating place, help their teenagers select low calorie-high bulk as the first part of a meal or snack, eliminate foods which do not require preparation and liquids usually consumed during the main meal. Four homework questions were assigned.

Week Seven

The behavioral lesson involved an explanation of behavior chains, how they are formed and can be broken. A behavior chain is a step-by-step sequence of activities and feelings which lead to a specific action, in this case, unnecessary eating. Teenagers were asked to analyse their own behavior chains and a list of alternate activities. Clients were asked to rearrange their schedules so that they were involved in other activities when inappropriate eating occurred, to avoid feelings that prompt hunger, and to delay eating 10 to 15 minutes. Homework involved listing situations where they actually used these techniques.

The nutrition lesson involved diet analysis of a variety of diets which included: The Mayo Diet, The Scarsdale Medical Diet, Very Low Carbohydrate Diet (Atkins Diet), The Pritkin Diet and The Davis Three Phase Approach to Weight Reduction (Appendix W). Clients evaluated these diets by forming small discussion groups and completing the Guidelines for Evaluating Diets form (Appendix X). A large group discussion followed where each small group presented their evaluation of the diet they had been assigned.

Patients received a handout which covered the following topics: developing incompatible behaviors, helping your teenager avoid feelings that prompt hunger, helping your teenager feel good about himself, goal-setting and teenager's new behaviors for Week Seven. An explanation of behavior chains and how to break them were included. Parents homework included: helping their teenager think of incompatible behaviors, planning their day around times when their child may be hungry and helping the teenager avoid feelings that prompt hunger. Four homework questions were assigned and a Food Management Questionnaire (Appendix Y) was completed and both were returned by the teenager the following week.

Week Eight

This week focused on maintenance. Maintenance Checklists (Appendix Z) were distributed and teenagers were requested to fill out a Program Evaluation (Appendix AA), Teenager Food Management Questionnaire (Appendix N) Nutrition and Exercise Quiz (Appendix E), and Self-Esteem Inventory (SE) (Appendix D). Teenagers also received another copy of Canada's Food Guide. At this session each teenager had final triceps skinfold, height and weight measures taken also.

The final exercise assessment was carried out and prizes were awarded for exercise improvement and weight loss.

Parents received a handout stressing the importance of practicing the new habits established during the program. Parents were also informed of the dates for the 3- and 6-month follow-up sessions.

Posttreatment

One week after the formal program was completed, a letter (Appendix BB) was forwarded to adolescents in the M group. They were informed that they had been selected to be followed up via a telephone call and were given the dates and times that the therapist would contact them. Telephone calls were made once per week in months 1 and 2, once every two weeks in months 3 and 4, and once per month during the last two months of follow-up. They were told that the purpose of the telephone call was to aid them in maintaining the progress they made in the program and also to help determine which treatment techniques were most effective. At a prearranged time they were telephoned by the therapist. Each time they were required to have weighed themselves before breakfast, prior to the therapist's call.

The telephone call to adolescents in the M group involved: adolescents

reported their weight when last weighed, the therapist questioned adolescents on their use of the techniques taught during the treatment program (i.e., the extent to which they used each technique) via completing one block of the Follow-up Maintenance Checklist (Appendix CC), and any problems to report. The therapist offerred suggestions on how to deal with any problems described.

Parents of children in the M group were contacted every two weeks in months 1 and 2 and once per month during months 3 to 6. The purpose of this call was to corroborate results and to determine the extent to which the parents were using the parent behavioral techniques suggested in the parent manual. Parents were also encouraged to support their adolescents' weight loss efforts and to reinforce their efforts consistently. Parent telephone calls included: a discussion of the child's progress with the therapist encouraging the parent to continue to support the child's weight management efforts, a discussion of any problems concerning the child's weight since last telephone call, and suggestions for coping with these problems. The parents were also asked which procedures taught during the program did they continue to use (Parent Behavior Checklist, Appendix DD).

At three and six months posttreatment both M and NM groups were weighed, had their height measured, triceps skinfold assessed and completed the Follow-up Maintenance Behavior Checklists (Appendix EE). In addition, six months after treatment subjects also completed the Self-Esteem Inventory (Appendix D).

RESULTS

Attrition

Of the 31 subjects who began the program, 5 dropped out (1 male and 4 females) during treatment phase, representing an attrition rate of 16%. All dropouts were in the Monday treatment group. One female paid the deposit but failed to show up for treatment. Another female dropped out in Week 5 due to psychiatric problems which her family considered "more important" than her weight problem. An additional female dropped out at Week 5 due to transportation difficulties. The remaining male and female dropped out in Week 2 due to a "lack of interest" noted by the parents.

One-way analyses of variance revealed that dropout subjects did not differ from those who completed treatment with respect to age, weight, pounds overweight, percent overweight, normed weight, triceps skinfold, or self-esteem (Table 3). However, one-way analysis of variance revealed a significant difference in the pretreatment weight index (WI) between dropouts ($\underline{M} = 1.72$, $\underline{SD} = 0.42$) and nondropouts ($\underline{M} = 0.87$, $\underline{SD} = 0.36$)($\underline{F}(1,29) = 22.5$, $\underline{p} < .001$). Therefore, dropouts were more overweight relative to their height, at pretreatment, than nondropouts.

Data from dropouts are not included in treatment and posttreatment analyses. There were no dropouts during the posttreatment and follow-up stages of the study.

Pretreatment Characteristics

Pretreatment characteristics for subjects who completed the treatment program appear in Table 3. Subjects average age was 14.04 years (range: 12 - 16)

Table 3. Pretreatment Characteristics of Dropouts and Nondropouts.

	Dropout (N=5)			Nondropout (N=26)		
	M	(S.D)	Range	M	(S.D)	Range
Age	14.00	(1.58)	12 - 16	14.04	(1.22)	12 - 16
Weight	177.3	(30.6)	153 - 213.3	171.7	(22.3)	128.3-226.1
Pounds Overweight	67.1	(26.7)	33.9 - 95.8	59.2	(26.5)	16.8-134.1
Percent Overweight	61.0	(22.7)	28.1 - 81.5	52.4	(5.2)	13.8-126.0
Ideal Weight	107.7	(11.6)	92.6-121.1	113.4	(9.5)	96.1-129.6
Triceps	30.8	(9.0)	20.0 - 45.0	35.1	(9.7)	18.0 - 51.0
Self-Esteem	29.4	(8.6)	20.0 - 40.0	38.2	(9.7)	18.0 - 55.0
Weight Index	1.72	(0.42)	1.29 - 2.24	0.87	(0.36)	0.23 - 1.81

and average weight 171.7 pounds (range: 128.3 - 226.1). Average weight index, triceps skinfold and self-esteem for subjects were 0.87 (range: 0.23 - 1.81), 35.1mm (range: 18.0 - 51.0) and 38.2 (range: 18 - 55) respectively.

The extremity of the weight problem of this group of subjects is indicated by the average pounds overweight and mean percentage overweight: 60.5 pounds (range: 13.8 - 126.0) and 53.8% (range: 16.8 - 134.2), respectively. This is a clinically significant weight problem for a population who average 14 years old.

Posttreatment and Follow-up Results

A series of 2 (Posttreatment Group) X 3 (Time) or 4 (Time) repeated measures analyses of variance on weight and fat measures were performed to determine if maintaining telephone contact with subjects after the treatment program would increase or stabilize their weight and fat losses. It was predicted that there would be increased differences in weight and fat losses between the M and NM groups at 3- and 6-month follow-ups. Repeated measures analyses of weight change, change in percent overweight, WI, change in WI, and triceps skinfold revealed no significant effects for Posttreatment Group (M/NM) or the Posttreatment Group X Time interaction (Table 4). Thus, there was no evidence found to support the prediction that the posttreatment telephone contact would increase or stabilize weight and fat losses.

Significant time effects were present for weight change (F (2,48) = 3.9, $p < .05$) and change in percentage overweight (F (2,48) = 6.6, $p < .05$). Visual inspection of Figure 1 clearly indicates that subjects in both M and NM groups weighed less at posttreatment than at pretreatment. Means and standard deviations for pounds lost and change in percent overweight from pretreatment to posttreatment and from posttreatment to 3- and 6-month follow-up sessions in M and NM groups are presented in Table 5. Although adolescents lost weight from pretreatment to posttreatment and decreased in percentage overweight between 3-

Table 4. Analyses of Variance on Repeated Measures of Treatment Outcome Measures for Maintenance and Nonmaintenance Groups.

Weight Change (lbs.)

Source	SS	df	MS	F
Group	44.4	1	44.4	0.1
Subjects	9285.9	24	386.9	
Time	251.9	2	126.0	3.9*
Group x Time	15.9	2	7.9	0.2
Time x Subjects	1539.0	48	32.1	

Percentage Overweight Change

Source	SS	df	MS	F
Group	3.3	1	3.3	0.0
Subjects	6697.3	24	279.1	
Time	287.1	2	143.6	6.6*
Group x Time	27.0	2	13.5	0.6
Time x Subjects	1052.0	8	21.9	

Weight Index

Source	SS	df	MS	F
Group	0.0	1	0.0	0.0
Subjects	1.0	24	0.1	
Time	0.3	2	0.1	2.9
Group x Time	0.1	2	0.0	0.6
Time x Subjects	2.4	48	0.0	

Change in Weight Index

Source	SS	df	MS	F
Group	0.0	1	0.0	0.0
Subjects	1.0	24	0.0	
Time	0.3	2	0.1	2.9
Group x Time	0.1	2	0.0	0.6
Time x Subjects	2.4	48	0.1	

Table 4. (Cont'd)

Triceps Skinfold

Source	SS	df	MS	F
Group	0.9	1	0.9	0.0
Subjects	5135.6	23	223.3	
Time	110.0	3	36.7	1.7
Group x Time	25.4	3	8.5	0.4
Time x Subjects	1513.9	69	22.0	

Self-Esteem

Source	SS	df	MS	F
Group	443.5	1	443.5	2.0
Subjects	5354.3	24	223.1	
Time	142.3	2	71.2	2.3
Group x Time	31.5	2	15.7	0.5
Time x Subjects	1460.2	48	30.4	

Strength of Practiced Behaviors

Source	SS	df	MS	F
Group	0.4	1	0.4	1.7
Subjects	6.4	24	0.3	
Time	0.1	1	0.1	0.1
Group x Time	0.1	1	0.1	2.6
Time x Subjects	1.4	24	0.1	

* $p < .05$
** $p < .001$

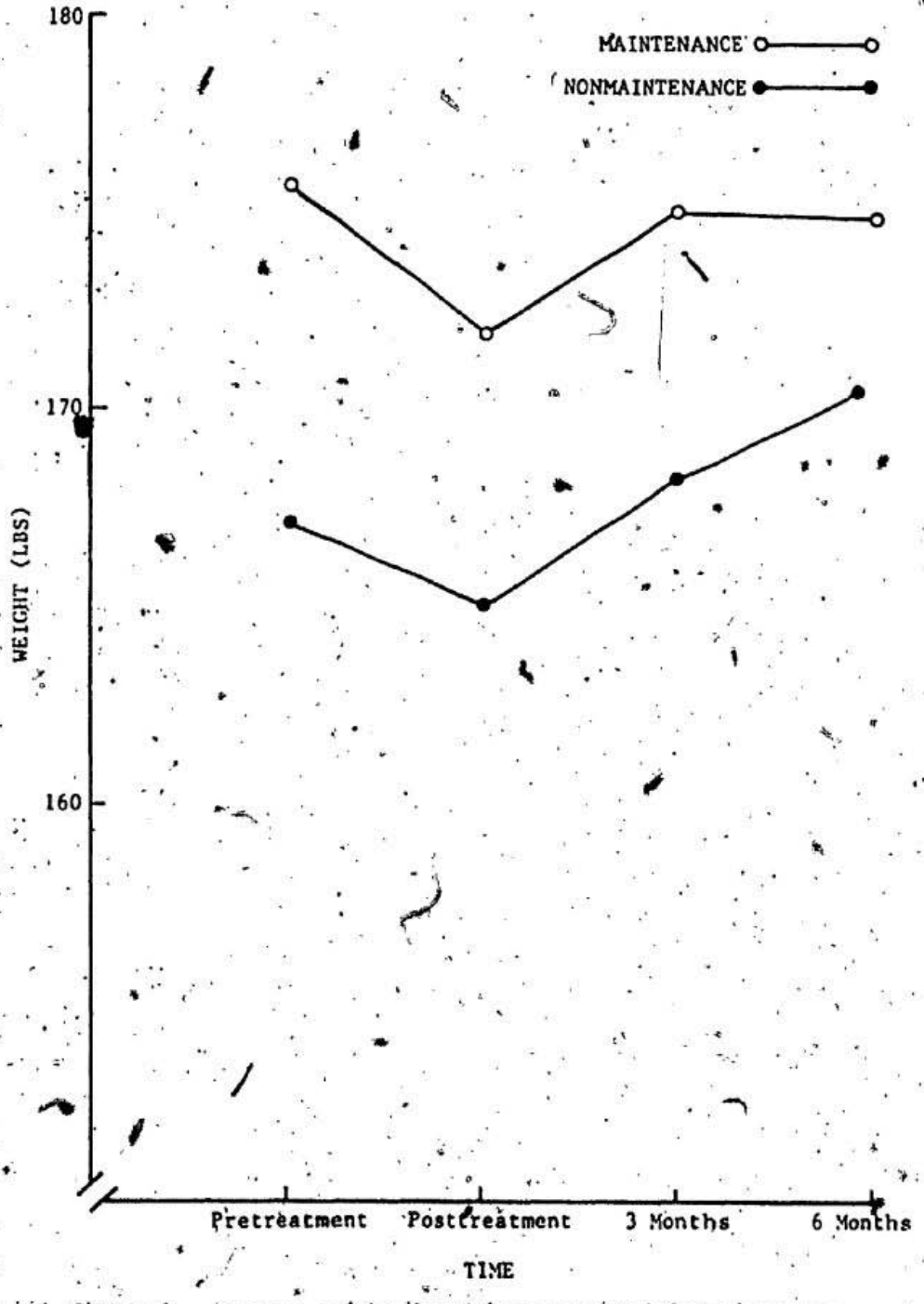

Figure 1. Average weight for Maintenance and Nonmaintenance groups at Pretreatment, Posttreatment and 3- and 6-month follow-ups.

and 6-months there was no differential effect of the posttreatment maintenance strategy.

An additional 2 (Posttreatment Condition) X 4 (Time) repeated measures analysis of variance was conducted to determine whether the M group had increased self-esteem (Table 4). It was predicted that because of additional weight losses subjects in the M group would have increased self-esteem. Results of the repeated measures analyses revealed no significant Posttreatment Group (M/NM), Time, or Posttreatment Group X Time effects. Therefore, the M and NM groups were not different in terms of self-esteem. This is not surprising since the posttreatment maintenance strategy was not effective.

It was also expected that the M group would adhere more to the weight management techniques taught in the program since they were being prompted regularly about the techniques by the therapist's call. A 2 (Posttreatment Condition) X 2 (Time) repeated measures analysis of variance for mean adherence ratings for M and NM groups found no support for this prediction (Table 4). There were no significant Posttreatment Group (M/NM), Posttreatment Group X Time or Time effects. At 3-month follow-up, average adherence ratings for M and NM groups respectively, were 2.27 (SD = 0.32) and 1.98 (SD = 0.44). At 6-month follow-up, average adherence ratings were 2.06 (SD = 0.48) and 1.98 (SD = 0.34) M and NM groups, respectively.

It is not reasonable to expect maintenance effects if a subject had been mainly gaining throughout the treatment program. Thirty-five percent or 9/26 subjects, 4 and 5 in M and NM groups, respectively completed the program weighing more than at the beginning. It was decided to determine if there was an interaction between the treatment condition (M/NM), and the result of treatment (Gainers(G)/Losers(L)). A criterion of loss of more than 1.0 pound was used to classify subjects as Losers or Gainers. This criterion was selected after examining the data and allowing sufficient degrees of freedom to permit appropriate statistical analyses. Both M and NM groups had 6 and 7 Gainers and Losers,

Table 5. Means and Standard Deviations for Pounds Lost and Change in Percentage Overweight at Posttreatment and Follow-up Sessions

	Maintenance (N=13)		Nonmaintenance (N=13)	
	M	(S.D)	M	(S.D)
Posttreatment				
Pounds	-3.5	(8.2)	-3.0	(8.0)
Percent Overweight	-2.2	(7.7)	-2.6	(7.4)
3 Month Follow-up				
Pounds	-0.4	(15.0)	1.5	(10.6)
Percent Overweight	3.0	(13.6)	1.6	(9.4)
6 Month Follow-up				
Pounds	-0.5	(16.7)	2.6	(12.4)
Percent Overweight	-5.3	(13.6)	11.1	(8.6)

Note: - indicates loss

respectively. Losers lost between 2.0 to 21.60 pounds whereas Gainers ranged between a loss of 1.0 pound to a gain of 8.25 pounds. It was predicted that Losers who were subjected to the Maintenance procedure (ML) would do better, in terms of weight and fat losses, after the treatment program than either Nonmaintenance Losers (NML), Maintenance Gainers (MG), or Nonmaintenance Gainers (NMG). It was also predicted that the NMG would do worse compared to the remaining three groups, in terms of weight and fat losses.

A series of 2 (Posttreatment Group) X 2 (Treatment Result) X 3 (Time) or 4 (Time) repeated measures analyses of variance were performed on weight, pounds lost, percentage overweight, change in percentage overweight, weight index, change in weight index, triceps skinfold, and self-esteem (Table 6). The only important additional information from this analysis was whether or not there was a significant interaction between the weight loss performance during the program and effect of the posttreatment maintenance procedure. Results of the Posttreatment Group (M/NM) X Treatment Result (L/G) interaction were not significant, for any of the dependent measures, so there is no evidence that the maintenance program had a beneficial effect. The main effect of Time (F (3,66) $= 3.40$, $p < .05$, F (3,66) $= 4.95$, $p < .05$), and the Treatment Result X Time interaction (F (3,66) $= 20.3$, $p < .001$, F (3,66) $= 4.95$, $p < .05$) were significant for weight and percentage overweight measures, respectively. As illustrated in Figure 2, these findings reveal that Gainers are continuing to gain weight while the Losers maintain their weight losses achieved in the weight management program, irrespective of the posttreatment telephone contact.

Tables 7, 8, and 9 present individual data for group members and dropout subjects. High interindividual variability necessitates such a report (Wilson, 1977) because group data do not provide an accurate picture of what occurs during a weight management treatment program.

Table 6. Repeated Measures Analyses of Variance on Treatment Measures for Maintenance Losers, Maintenance Gainers, Nonmaintenance Losers and Nonmaintenance Gainers

Weight

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	1376.6	1	1376.6	0.65
Treatment Result	395.4	1	395.4	0.19
Posttreatment Group x Treatment Result	1769.8	1	1769.8	0.84
Between Subjects Within Groups	46576.7	22	2117.7	
Within Groups				
Time	311.9	3	104.0	3.40*
Posttreatment Group x Time	34.2	3	11.4	0.77
Treatment Results x Time	1860.6	3	602.2	20.3**
Posttreatment Group x Treatment Result x Time	40.1	3	13.4	0.73
Time x Subjects	2015.5	66	30.5	

Pounds Lost

Source	SS	df	MS	F
Between Groups				
Treatment Group	15.8	1	15.8	0.18
Treatment Result	1514.8	1	1514.8	17.00**
Posttreatment Group x Treatment Result	28.8	1	28.8	0.32
Between Subjects Within Groups	1961.4	22	89.2	0.11
Within Groups				
Time	513.4	2	256.7	8.64*
Posttreatment Group x Time	12.7	2	6.4	0.21
Treatment Results x Time	128.7	2	64.4	2.17
Posttreatment Group x Treatment Result x Time	2.4	2	1.2	0.96
Time x Subjects	1306.9	44	29.7	

Table 6. (Cont'd)

Percentage Overweight

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	3256.5	1	3256.5	1.16
Treatment Result	100.0	1	100.0	0.04
Posttreatment Group x Treatment Result	2488.9	1	2488.9	0.88
Between Subjects Within Groups	62015.9	22	2818.9	
Within Groups				
Time	463.3	3	154.4	4.95*
Posttreatment Group x Time	32.1	3	10.7	0.34
Treatment Result x Time	2752.0	3	917.3	29.40**
Posttreatment Group x Treatment Result x Time	28.3	3	9.4	0.30
Time x Subjects	2059.3	66	31.2	

Change in Percentage Overweight

Source	SS	df	MS	F
Between Groups				
Posttreatment Groups	5.2	1	5.2	0.13
Treatment Result	1358.8	1	1358.2	34.42**
Posttreatment Group x Treatment Result	10.1	1	10.1	0.25
Between Subjects Within Groups	868.3	22	39.5	
Within Groups				
Time	8.8	2	4.4	0.14
Posttreatment Group x Time	7.5	2	3.8	0.12
Treatment Result x Time	352.2	2	176.1	5.69*
Posttreatment Group x Treatment Result x Time	0.3	2	0.1	0.0
Time x Subjects	1362.4	44	31.0	

Table 6. (Cont'd)

Weight Index

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	0.3	1	0.3	0.56
Treatment Result	0.5	1	0.5	0.77
Posttreatment Group x Treatment Result	0.5	1	0.5	0.77
Between Subjects Within Groups	13.2	22	0.6	
Within Groups				
Time	0.1	3	0.0	1.73
Posttreatment Group x Time	0.0	3	0.0	0.47
Treatment Result x Time	0.3	3	0.1	7.84**
Posttreatment Group x Treatment Result x Time	0.02	3	0.0	0.48
Time x Subjects	1.0	66		

Change in Weight Index

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	0.0	1	0.0	0.00
Treatment Result	0.2	1	0.2	4.32*
Posttreatment Group x Treatment Result	0.0	1	0.0	0.01
Between Subjects Within Groups	0.8	22	0.0	
Within Groups				
Time	0.2	2	0.1	2.62
Posttreatment Group x Time	0.1	2	0.0	0.57
Treatment Result x Time	0.3	2	0.1	2.96
Posttreatment Group x Treatment Result x Time	0.1	2	0.0	0.62
Time x Subjects	2.1	44		

Table 6. (Cont'd)

Triceps

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	2.2	1	2.2	0.01
Treatment Result	155.9	1	155.9	0.76
Posttreatment Group x Treatment Result	685.2	1	685.2	3.33
Between Subjects Within Groups	4317.6	21	206.0	
Within Groups				
Time	104.2	3	34.7	1.55
Posttreatment Group x Time	30.3	3	10.1	0.45
Treatment Result x Time	69.8	3	23.3	1.03
Posttreatment Group x Treatment Result x Time	25.5	3	8.5	0.38
Time x Subjects	1415.4	63	22.5	

Self-Esteem

Source	SS	df	MS	F
Between Groups				
Posttreatment Group	420.0	1	420.0	1.74
Treatment Result	15.2	1	15.2	0.1
Posttreatment Group x Treatment Result	42.9	1	42.9	0.2
Between Subjects Within Groups	5296.2	22	240.7	
Within Groups				
Time	150.6	2	75.3	2.4
Posttreatment Group x Time	33.0	2	16.5	0.52
Treatment Result x Time	27.6	2	13.8	0.43
Posttreatment Group x Treatment Result x Time	24.7	2	32.0	0.39
Time x Subjects	12.3	44		

Note: * $p < .05$
** $p < .001$

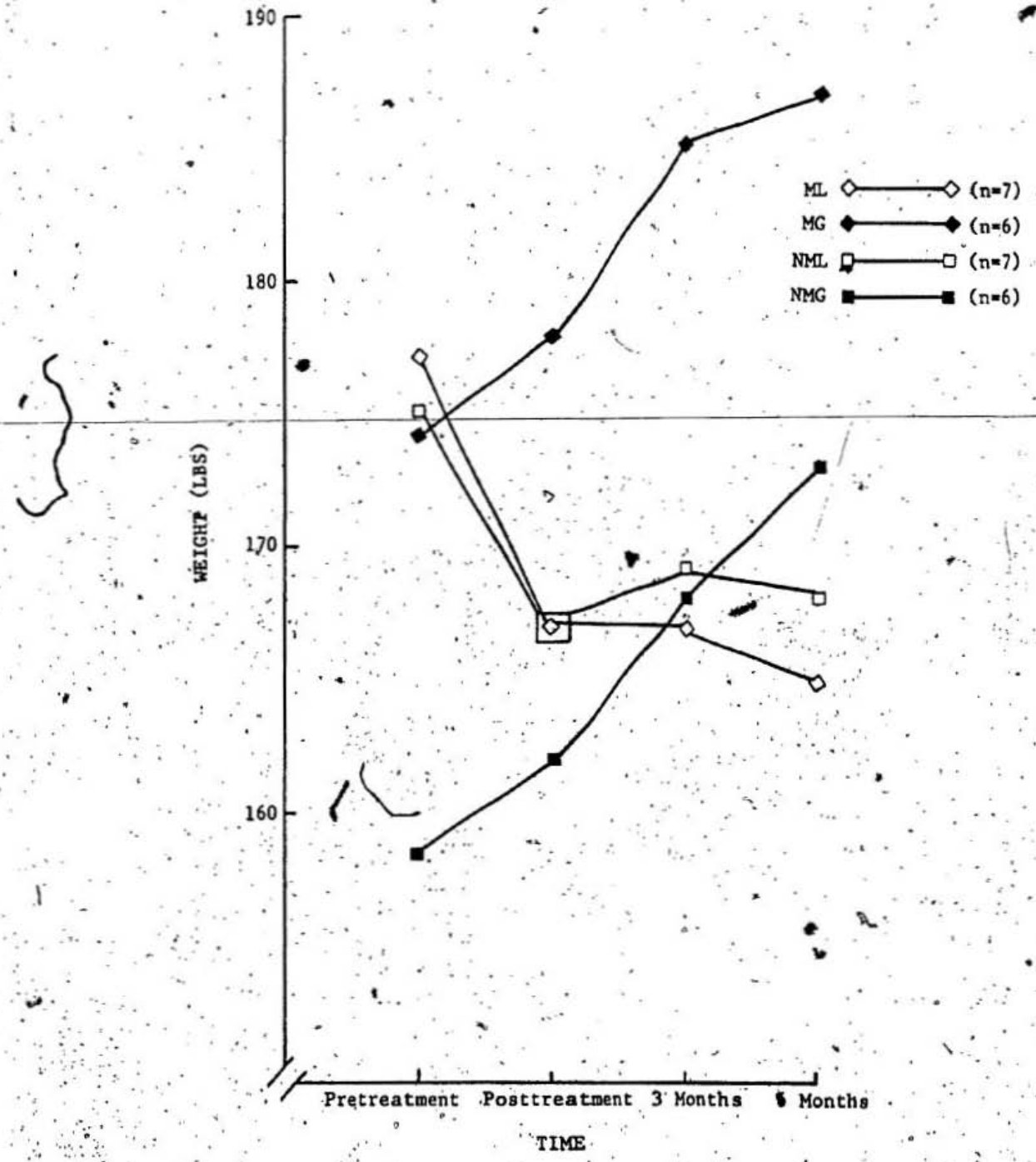

Figure 1. Average weight at pretreatment, posttreatment and 3- and 6- month follow-ups for Maintenance Losers (ML), Maintenance Gainers (MG), nonmaintenance Losers (NML) and Nonmaintenance Gainers (NMG)

1 Data for Maintenance Group

PRETREATMENT				CHANGE											
Weight	Overweight lbs	Overweight %	WI	Weight (lbs.) Post	Weight (lbs.) FI	Weight (lbs.) FII	% Overweight Post	% Overweight FI	% Overweight FII	WI Post	WI FI	WI FII	Triceps Post	Triceps FI	Triceps FII
161.00	39.93	32.97	0.64	-1.00	-1.50	-0.11	-0.82	-0.97	-0.67	-0.02	-0.02	-0.02	40	35	35
199.00	82.09	70.20	1.05	2.25	8.00	12.18	1.94	6.80	12.33	0.03	0.03	0.13	41	39	36
183.75	66.27	51.00	0.91	-2.00	5.25	0.94	2.00	9.87	1.21	-0.95	0.97	0.86	99*	48	44
173.50	49.27	39.66	0.71	-18.75	-33.00	-25.65	-15.10	-26.66	-35.74	-0.28	-0.27	-0.35	22	18	12
186.00	68.52	58.32	0.99	-13.50	-22.25	-15.81	-11.49	-19.32	-25.86	-0.23	-0.18	-0.22	35	32	28
154.75	32.95	27.04	0.53	-5.00	-0.75	2.48	-4.09	-1.04	-1.65	-0.09	0.09	0.05	34	38	30
171.50	71.48	71.48	1.06	4.75	18.00	8.28	4.75	17.54	10.37	0.07	0.16	0.11	36	40	32
195.75	78.27	66.63	1.17	3.25	10.50	3.94	2.76	9.37	3.88	0.05	0.07	0.08	39	46	44
172.25	76.13	79.11	1.16	8.25	18.25	-1.84	8.68	18.89	-2.76	0.13	0.03	0.02	40	40	40
157.75	54.00	52.04	1.00	-12.25	-7.00	4.48	-13.76	-7.04	-9.16	-0.21	0.02	0.08	25	30	32
209.00	109.00	108.95	1.61	-3.50	-3.50	-8.72	-5.50	-2.95	-15.29	-0.05	-0.01	-0.09	44	41	42
172.75	50.95	41.40	0.76	-9.70	-8.00	1.98	-7.57	-6.40	-5.45	-0.15	0.05	0.04	15	18	18
142.25	49.09	51.03	0.68	4.50	11.50	1.66	4.70	11.97	0.16	0.07	-0.06	0.05	22	26	27

*missing data.

Table 8. Individual Data for Maintenance Group

Subject Clinic ID	Age	Sex	PRETREATMENT Weight	Overweight lbs	Overweight %	WI	CHANGE Weight (lbs.) Post	Weight (lbs.) FI	Weight (lbs.) FII	% Overweight Post	% Overweight FI	% Overweight FII	WI Post	WI FI	WI FII
220	15	F	161.00	39.93	32.97	0.64	-1.00	-1.50	-0.11	-0.82	-0.97	-0.67	-0.02	-0.02	-0.02
213	14	F	199.00	82.09	70.20	1.05	2.25	8.00	12.18	1.94	6.80	12.33	0.03	0.03	0.13
204	15	F	183.75	66.27	51.00	0.91	-2.00	5.25	0.94	2.00	9.87	1.21	-0.95	0.97	0.86
229	15	M	173.50	49.27	39.66	0.71	-18.75	-33.00	-25.65	-15.10	-26.66	-35.74	-0.28	-0.27	-0.35
207	14	F	186.00	68.52	58.32	0.99	-13.50	-22.25	-15.81	-11.49	-19.32	-25.86	-0.23	-0.18	-0.22
227	15	F	154.75	32.95	27.04	0.53	-5.00	-0.75	2.48	-4.09	-1.04	-1.65	-0.09	0.09	0.05
228	12	F	171.50	71.48	71.48	1.06	4.75	18.00	8.28	4.75	17.54	10.37	0.07	0.16	0.11
233	14	F	195.75	78.27	66.63	1.17	3.25	10.50	3.94	2.76	9.37	3.88	0.05	0.07	0.08
222	13	M	172.25	76.13	79.11	1.16	8.25	18.25	-1.84	8.68	18.89	-2.76	0.13	0.03	0.02
208	13	F	157.75	54.00	52.04	1.00	-12.25	-7.00	4.48	-13.76	-7.04	-9.16	-0.21	0.02	0.08
202	12	F	209.00	109.00	108.95	1.61	-3.50	-3.50	-8.72	-5.50	-2.95	-15.29	-0.05	-0.01	-0.09
225	15	F	172.75	50.95	41.40	0.76	-9.70	-8.00	1.98	-7.57	-6.40	-5.45	-0.15	0.05	0.04
215	13	M	142.25	49.09	51.03	0.68	4.50	11.50	1.66	4.70	11.97	0.16	0.07	-0.06	0.05

*Note: 99 indicates missing data.

1 Data for Nonmaintenance Group

PRETREATMENT				CHANGE								
Weight	Overweight lbs	Overweight %	WI	Weight (lbs.) Post	Weight (lbs.) FI	Weight (lbs.) FII	% Overweight Post	% Overweight FI	% Overweight FII	WI Post	WI FI	WI FII	Triceps Post	Triceps FI	Triceps FII
190.00	79.28	71.60	1.12	-2.50	3.25	2.82	-2.25	3.40	-3.18	-0.04	-0.01	0.04	45	45	40
160.00	38.20	31.35	0.56	-12.00	-25.50	-9.23	-9.84	-21.25	-15.89	-0.18	-0.18	-0.11	28	31	26
128.25	19.72	18.16	0.37	2.75	10.25	5.93	2.54	9.84	7.03	0.04	0.04	0.10	38	32	32
170.50	59.78	54.00	0.92	-7.00	-2.00	-0.93	-6.33	-2.00	-9.36	-0.11	-0.01	0.00	32	36	38
173.00	48.77	33.00	0.64	-2.00	0.00	-3.20	-1.00	-4.90	-4.90	-0.03	-0.02	-0.02	38	27	25
138.00	16.92	14.00	0.23	6.50	4.50	-1.95	5.34	4.00	3.48	0.08	-0.08	-0.03	30	27	25
181.25	70.78	63.70	1.01	2.70	2.75	-3.93	2.40	-2.30	-4.06	0.04	-0.08	-0.04	38	38	33
183.00	66.09	56.53	0.88	-0.50	6.50	7.70	0.43	5.47	2.78	-0.01	-0.01	0.10	28	38	41
162.75	66.07	50.00	0.94	-0.25	11.00	14.43	0.30	10.42	2.91	0.00	0.12	0.23	25	34	34
137.75	16.75	13.76	0.31	-2.50	-2.50	-1.36	-1.98	-1.76	-0.89	-0.04	-0.02	-0.00	28	28	27
162.00	51.28	46.32	0.89	7.50	15.50	6.57	6.77	13.68	9.89	0.12	0.08	0.15	19	27	34
168.50	43.96	35.30	0.74	-10.25	-11.00	-15.77	-8.23	-9.00	-15.76	-0.15	0.03	-0.16	28	27	27
226.10	134.17	126.00	1.81	-21.60	6.60	10.53	-21.11	-6.08	-14.71	-0.34	0.28	0.24	35	45	34

es loss

Table 8. Individual Data for Nonmaintenance Group

Subject Clinic ID	Age	Sex	PRETREATMENT Weight	Overweight lbs	Overweight %	WI	CHANGE Weight (lbs.) Post	FI	FII	% Overweight Post	FI	FII	WI Post	FI	FII
216	14	F	190.00	79.28	71.60	1.12	-2.50	3.25	2.82	-2.25	3.40	-3.18	-0.04	-0.01	0.04
230	15	F	160.00	38.20	31.35	0.56	-12.00	-25.50	-9.23	-9.84	-21.25	-15.89	-0.18	-0.18	-0.11
240	13	M	128.25	19.72	18.16	0.37	2.75	10.25	5.93	2.54	9.84	7.03	0.04	0.04	0.10
237	14	F	170.50	59.78	54.00	0.92	-7.00	-2.00	-0.93	-6.33	-2.00	-9.36	-0.11	-0.01	0.00
224	15	M	173.00	48.77	33.00	0.64	-2.00	0.00	-3.20	-1.00	-4.90	-4.90	-0.03	-0.02	-0.02
223	16	F	138.00	16.92	14.00	0.23	6.50	4.50	-1.95	5.34	4.00	3.48	0.08	-0.08	-0.03
232	14	F	181.25	70.78	63.70	1.01	2.70	2.75	-3.93	2.40	-2.30	-4.06	0.04	-0.08	-0.04
218	14	F	183.00	66.09	56.53	0.88	-0.50	6.50	7.70	0.43	5.47	2.78	-0.01	-0.01	0.10
221	13	M	162.75	66.07	50.00	0.94	-0.25	11.00	14.43	0.50	10.42	2.91	0.00	0.12	0.23
210	16	F	137.75	16.75	13.76	0.31	-2.50	-2.50	-1.36	-1.98	-1.76	-0.89	-0.04	-0.02	0.00
219	13	F	162.00	51.28	46.32	0.89	-7.50	15.50	6.57	6.77	13.68	9.89	0.12	0.08	0.15
212	16	F	168.50	43.96	35.30	0.74	-10.25	-11.00	-15.77	-8.23	-9.00	-15.76	-0.15	0.03	-0.16
205	12	F	226.10	134.17	126.00	1.81	-21.60	6.60	10.53	-21.11	-6.08	-14.71	-0.34	0.28	0.24

Note: - indicates loss

Table 1. Individual Data for Dropout Subjects.

Subject Clinic ID	Age	Sex	Weight	Overweight lbs.	Overweight %	WI	Triceps
203	14	F	208.10	91.90	78.56	2.24	31
217	12	M	156.75	64.20	69.37	1.80	29
204	13	F	153.25	49.50	47.70	1.29	20
231	16	F	155.00	33.92	28.08	1.30	29
214	15	F	213.25	95.77	81.52	1.97	45

DISCUSSION

The present findings fail to provide support for the hypothesis that maintaining telephone contact with subjects after an adolescent weight loss program would increase or stabilize weight and fat losses. In addition, the hypothesis that the M group would show greater adherence to weight management procedures and higher self-esteem than the NM group are not supported. However, this finding is not surprising since the maintenance strategy was not differentially effective.

Possible Contributory Factors

There are several factors which might account for the lack of differential effectiveness of the posttreatment maintenance strategy.

Because of the low weight losses in the treatment phase of this study it is not surprising that subjects did not maintain. One cannot maintain weight loss at posttreatment if one has not lost a significant amount of weight in the treatment phase. The mean weight loss during the treatment phase of the study was low. Subjects averaged 3.15 pound weight losses during the 8-week treatment program; an average of 0.4 pounds per week. This average weight loss is lower than the usually reported range of weekly weight losses in adolescent behavioral weight management programs. Weight losses have been reported which range from 1.4 to 1.6 pounds per week (Coates, Jeffery, Slinkard, Killen, and Danaher, 1982 (15 weeks with average weekly loss of 1.4 pounds with subjects who were intially an average 40.6% overweight) ; Gross et al., 1976 (10 weeks with average weekly weight losses of 1.6 pounds with subjects who were intially an average 39.2% overweight); Rivinus et al., 1976 (10 weeks with average weekly weight losses of 1.6 pounds per week with subjects who were on average 72% overweight)). The subjects in these studies were, on average, at least 40% overweight which is

similar to the average percentage overweight of our subjects at Week One of the treatment program.

When we compared subjects who lost weight with those who gained during the treatment program it was obvious that the Gainers were untouched by the treatment program (See Figure 2). These subjects gained at a steady rate all throughout the treatment program and during the posttreatment maintenance period. Subjects who lost weight in the treatment program maintained their weight loss during the posttreatment maintenance period. Obviously the posstreatment contact period was of benefit to those who responded to the treatment program. These subjects did not begin to gain back the weight they had lost in the treatment program which is usually the pattern after behavioral weight management programs. Instead the posttreatment phase was a period in which these subjects stabilized their weights. However, there was no differential effect of the maintenance contact procedure for Losers or Gainers. None of the measures available differentiated between Losers and Gainers.

Perhaps the lack of differential effectiveness was due to motivational differences. One indication of poor motivation is a high attrition rate. Our attrition rate of 16% is not high in relation to the average rate for obesity programs of 20-80% (Stunkard, 1980) and the dropout rate for the posttreatment phase was 0%. The posttreatment dropout rate of zero percent compares favorably with two recent studies which reported posttreatment dropout rates, after an adult behavioral weight management program, of 6% (Perri, Shapiro, Ludwig, Twentyman and McAdoo, 1984) and 10% (Perri, McAdoo, Spevak, and Newlin, 1984a).

Probably there was a difference in attitudes between Losers and Gainers. Parents and adolescents varied in their attitude towards the posttreatment telephone calls from the therapist. Although systematic data collection was not carried out to investigate parents and adolescents "cooperativeness" during the telephone contact, some observations can be reported. For some parents and

adolescents remembering to remain available for the time period that they had schelduled with the therapist was a major chore. This was implied by the person's voice tone, willingness to seek advice, eagerness to share experiences about trying to implement the weight management techniques and number of times they were found to not be in when called. Other parents and adolescents appreciated being called by the therapist. These people were usually enthusiastic, eager to seek the therapist's advice to maintain the behavioral techniques taught in the program and were rarely found not to be in when the therapist called.

It was also evident that some parents and adolescents participated to a greater degree in the posttreatment phase of the study. Some consistently reported trying to use the techniques taught in the program, always had their weights ready to report when the therapist called and were constantly seeking advice about setbacks. Overall, parents and adolescents varied in their attitudes towards the therapist call and their degree of participation in the posttreatment program phase and this could account for the lack of differential effectiveness of this posttreatment strategy. Parents and adolescents who were not seriously attempting to continue carrying out the behavioral management procedures, in consultation with the therapist at posttreatment, may not have done as well and this would affect the overall results for the M group. It is not possible to assess retrospectively whether or not negative attitudes were typical of Gainers. However, this is an interesting area for future research.

Conclusions and Suggestion for Future Research

Maintenance and nonmaintenance groups did not differ in terms of weight or fat loss, as measured by all dependent measures, at 3- and 6-month follow-ups. Thus, the telephone call from the therapist was not sufficient to produce differential treatment effects.

Improvements can be made so that future adolescent weight management

maintenance programs can be more effective. This program involved a minimal maintenance program and was investigated chiefly because of its potential cost-effectiveness. It was anticipated that telephone contact might possibly be minimally effective for enhancing or maintaining weight losses. However, because of its potential cost-effectiveness it was necessary and economical to investigate. Therefore, from the present findings it is apparent that telephone contact alone is not sufficient to enhance or maintain the effects of a weight management program. Combining telephone contact with other posttreatment maintenance strategies to enhance maintenance of weight losses achieved in weight management programs presents many possibilities for future research.

Two recent studies (published since the commencement of the present study) with adult weight management maintenance programs have enhanced maintenance effects, after a standard behavioral weight loss program, by giving subjects a multicomponent maintenance program (Perri et al., 1984; Perri et al., 1984a). These studies have included relapse prevention training during the treatment program (Perri et al., 1984), both telephone and mail contact, and self-help groups (Perri et al., 1984a). These studies demonstrated that telephone contact at posttreatment was only effective when combined with relapse prevention training during the treatment program. Therefore, it seems worthwhile to provide relapse prevention training during the treatment program and follow-up telephone contact when one is implementing a maintenance program.

The present study used only telephone contact as a posttreatment maintenance strategy. The telephone contact involved prompting clients about the behavioral techniques taught in the program and reporting their weights. No daily monitoring was involved. Daily monitoring through the use of postcards, which were mailed weekly to the therapist, and relapse prevention training were used in the two recently cited studies and may enhance maintenance effects, after an adolescent weight management program. Relapse prevention could be taught towards the conclusion of the treatment program to enable the adolescents to

cope with setbacks and relapses, after the program has terminated. Recently self-help groups have also been used to facilitate maintenance of weight loss after an adult behavioral weight loss program (Perri et al., 1984a). Clients monitor each others weight, use praise to encourage weight loss and utilize group problem solving when an individual experiences difficulties in his or her weight loss efforts. "Buddy groups" could also be used with adolescents to provide a social support system, after a weight management program, to enhance maintenance of weight losses.

This study involved an 8-week treatment program to attempt to modify eating habits in an adolescent population. It seems likely that extending the treatment program over 10 or 12 weeks would increase the possibility of modifying these longstanding habits. This result could be achieved, with this treatment program, by presenting less material (i.e., behavioral, nutritional and exercise) each treatment week or by allowing adolescents a break in the treatment program to practice their eating habits. Recent studies which attempt to produce maintenance effects, after an adult behavioral weight management program, are using treatment programs of at least 14 weeks (Perri et al., 1984; Perri et al., 1984a).

Some overweight adolescents appear to be less socially skilled than others. However, Coopersmith's self-esteem inventory (1967) did not differentiate between subjects in the M or NM group or the Losers and Gainers. The less socially skilled overweight adolescents appeared unable to assert themselves in attempting to change their old eating habits. Several of these adolescents sought advice on how to refuse refreshments at parties and during the Christmas vacation. A social skills training program seems a worthwhile component to include in an adolescent weight management program. If these adolescents are taught the appropriate social skills then they may be more successful at refusing unwanted refreshments at parties and on holidays.

The implications of the findings of the present study are quite clear.

Posttreatment telephone contact did not enhance or stabilize the weight or fat losses of an adolescent population 3- and 6-months after a multicomponent behavioral treatment program. However, subjects who lost weight in the treatment program maintained their loss and subjects who gained weight continued to gain at 3- and 6-month follow-ups, irrespective of posttreatment contact.

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Appendixes

Appendix A

ATTENTION OVERWEIGHT TEENAGERS

A Teenage Fitness/Weight Control Program will be offered under the supervision of Members of the MUN Psychology Dept.

IF YOU ARE BETWEEN 12 - 16 yrs. of age
- Are 20% overweight or more
- Have a parent willing to help

Then call 737-8496 (Mon to Fri) and leave your name and telephone number and we will contact you.

Appendix B

PHYSICIAN PERMISSION FORM

Memorial University of Newfoundland

Psychology Department

Teenage Fitness / Weight Reduction Clinic

_____ is planning to participate in the Psychology Department's behavior therapy program for gradual and controlled weight reduction. I have examined _____ and have_____/have not_____ found him/her in sufficiently good health at this time to participate in such a program.

Comments: _____

_____

_____

_____

_____
Doctor's signature

_____
Date

Appendix C

TEENAGE FITNESS / WEIGHT REDUCTION CONTRACT

The teenage fitness program will focus on establishing new habits that lead to weight loss and ultimately to the maintenance of a desired weight. Information about how to change eating and exercise habits will be presented weekly to a small group of teenagers. In order to establish new habits and break old ones, new behaviors must be practised daily.

To ensure the success of my participation in this program I _____, agree to:

1) Keep a food and exercise diary so I can pinpoint the habits I need to change.

2) Use the information conveyed in weekly meetings to outline plans for changing my eating and exercise habits and do my best to stick to these plans.

3) Attend weekly meetings and participate in class discussions and exercises.

I, _____, parent to the above named teenager, promise to assist him/her effort to change habits. I agree to:

1) Deposit $20.00 which will be refunded to my son/daughter for attendance and completion of homework assignments and $5 to cover xeroxing charges

2) Read over the food diary with my son/daughter weekly to check for habits that are contributing to his/her weight management problem.

3) Encourage physical exercise by _____ with my son/daughter as often as possible.

4) Try to remove temptations to eat from my child's surroundings.

5) Attend weekly meetings or complete assignments as required.

I, _____, agree to:

1) Present a weight reduction program which, according to the recent research, is most likely to bring about weight management.

2) Examine each teenager's food diary weekly and help him/her formulate plans for changing habits.

DATE: _____

_____ _____

Parent's Signature Teenager's Signature

_____

Group Leader's Signature

Appendix D

Please mark each statement in the following way:

If the statement describes how you usually feel, put a check ( ) in the column, 'Like Me'.

If the statement does not describe how you usually feel, put a check ( ) in the column "Unlike Me".

There are no right or wrong answers.

	Like Me	Unlike Me
1. I spend a lot of time daydreaming.		
2. I'm pretty sure of myself.		
3. I often wish I were someone else.		
4. I'm easy to like.		
5. My parents and I have a lot of fun together.		
6. I never worry about anything.		
7. I find it very hard to talk in front of the class.		
8. I wish I were younger.		
9. There are lots of things about myself I'd change if I could.		
10. I can make up my mind without too much trouble.		
11. I'm a lot of fun to be with.		
12. I get upset easily at home.		
13. I always do the right thing.		
14. I'm proud of my school work.		
15. Someone always has to tell me what to do.		
16. It takes me a long time to get used to anything new.		
17. I'm often sorry for the things I do.		
18. I'm popular with kids my own age.		
19. My parents usually consider my feelings.		
20. I'm never unhappy.		
21. I'm doing the best work that I can.		
22. I give in very easily.		
23. I can usually take care of myself.		
24. I'm pretty happy.		
25. I would rather play with children younger than me.		
26. My parents expect to much of me.		
27. I like everyone I know.		
28. I like to be called on in class.		

		Like Me	Unlike Me
29.	I understand myself.		
30.	It's pretty tough to be me.		
31.	Things are all mixed up in my life.		
32.	Kids usually follow my ideas.		
33.	No one pays much attention to me at home.		
34.	I never get scolded.		
35.	I'm not doing as well in school as I'd like to.		
36.	I can make up my mind and stick to it.		
37.	I really don't like being a boy-girl.		
38.	I have a low opinion of myself.		
39.	I don't like to be with other people.		
40.	There are many times when I'd like to leave home.		
41.	I'm never shy.		
42.	I often feel upset in school.		
43.	I often feel ashamed of myself.		
44.	I'm not as nice looking as most people.		
45.	If I have something to say, I usually say it.		
46.	Kids pick on me very often.		
47.	My parents understand me.		
48.	I always tell the truth.		
49.	My teacher makes me feel I'm not good enough.		
50.	I don't care what happens to me.		
51.	I'm a failure.		
52.	I get upset easily when I'm scolded.		
53.	Most people are better liked than I am.		
54.	I usually feel as if my parents are pushing me.		
55.	I always know what to say to people.		
56.	I often get discouraged in school.		
57.	Things usually don't bother me.		
58.	I can't be depended on.		

Appendix E

QUIZ
98

(1) Which of the following are helpful in losing weight?
(a) exercise
(b) eating slowly
(c) putting food out of sight between meals
(d) all of the above

(2) Vitamin C is important for
(a) night sight
(b) eating slowly
(c) preventing us from catching colds
(d) big muscles

(3) In order to help lose weight exercise should be done
(a) once per week
(b) only after eating
(c) three times a week or more
(d) exercise is not important for losing weight

(4) When we get the urge to eat between meals we should
(a) eat a high calorie food like chocolate cake, candy etc.
(b) eat a little of a nutritious food like carrots, etc.
(c) try to remember why we should not eat high calorie food
(d) both (b) and (c) are correct
(e) none of the above are correct

(5) Vitamin D is:
(a) important for night sight
(b) is found in milk
(c) is mainly found in oranges
(d) both (a) and (b) are correct.

(6) We use up energy by exercising True ( ) False ( )

(7) We take in energy by eating True ( ) False ( )

(8) We should eat quickly to get the meal over with as quickly as possible True ( ) False ( )

(9) In order to eat slowly we should
(a) put our forks etc. down between bites
(b) watch T.V. while eating
(c) chew and swallow one mouthful before putting another in our mouth
(d) study while eating
(e) only (a) and (c) are correct
(f) only (b) and (c) are correct

(10) Exercise helps us lose weight because
(a) the more time we exercise the less time we have to eat
(b) exercise takes away our appetite.
(c) while exercising we burn up calories
(d) none of the above are correct

(11) People who remain obese from childhood into adulthood
(a) have more physical problems in adulthood than normal weight adults
(b) do not have more physical problems when adults
(c) both (a) and (b) are incorrect

(PLEASE TURN OVER)

(12) Because we "pig-out" once this means that
(a) we will never lose weight
(b) we will "pig-out" every time we get a chance
(c) we should realize that we all make mistakes and we should try very hard not to make many of these mistakes

(13) The best way of losing weight and remaining healthy is by
(a) starving ourselves as long as we can
(b) eating only one meal a day
(c) eating only green vegetables 3 times a day
(d) eating 3 well balanced meals per day but eating no more than we need
(e) exercise at least 3 times per week
(f) only (a) and (c) are correct
(g) only (d) and (e) are correct

****
****

Appendix F

Weight History Questionnaire

Name _____ Sex _____ Age _____ Birthdate _____

Address _____ Telephone _____

Weight History

1. Your present weight _____ Height _____

2. Describe your present weight. (circle one)
   very overweight slightly overweight about average

3. Are you dissatisfied with the way you look at this weight?
   completely satisfied satisfied neutral dissatisfied very

4. At what weight have you felt your best or do you think you would feel you best? _____

5. How much weight would you like to lose? _____

6. Do you feel your weight affects your daily activities?
   no some often extreme

7. Why do you want to lose weight at this time? _____

8. Have there been times in the past when you have been overweight? If so, explain. _____

9. What do you do for physical exercise and how often do you do it?

Activity (e.g., swimming)	Frequency (daily, weekly, etc.)

10. Have you ever tried to lose weight before? If so, how? Were these methods effective? _____

11. What usually goes wrong with your weight loss programme? _____

Medical History

12. When did you last have a complete physical examination?

13. Who is your current doctor?

14. What medical problems do you have at the present time?

15. What medications or drugs do you take regularly?

16. List any medications, drugs, or foods you are allergic to;

17. List any hospitilizations or operations. Indicate how old you were at each hospital admission

AGE	REASON FOR ADMISSION

18. List any seriqus illnesses you have had which have not required hospitilization. Indicate how old you were during each illness.

AGE	ILLNESS

19. Describe any of your medical problems that are complicated by excess weight.

20. List any psychiatric contact, individual counseling, that you have had or are now having.

Age	REASON FOR CONTACT AND TYPE OF THERAPY

Social History

21. Circle the last year of school attended:

1 2 3 4 5 6 7 8 9 10 11
grade school high school

other _____

22. Describe your father's weight while you were growing up.

overweight underweight

very slightly average slightly very

23. Describe your mother's weight while you were growing up.

overweight underweight

very slightly average slightly very

24. List your brothers' and sisters' ages, sex, percent weights, heights, and circle whether they are overweight, averge or underweight.

age	sex	weight	height	overweight			underweight	
_____				very	slightly	average	slightly	very
_____				very	slightly	average	slightly	very
_____				very	slightly	average	slightly	very

25. Please add any additional information you feel may be relevant to your weight problem. This includes interactions with your family and friends that might sabbotage a weight loss program, and additional family or social history that you feel might help us understand your weight problem.

_____

_____

_____

_____

_____

Appendix G

Time	Food Type	Quantity	M/S*	H+	Body Position #	Activity While Eating	Location of Eating	Eating With Whom	Feeling While Eating

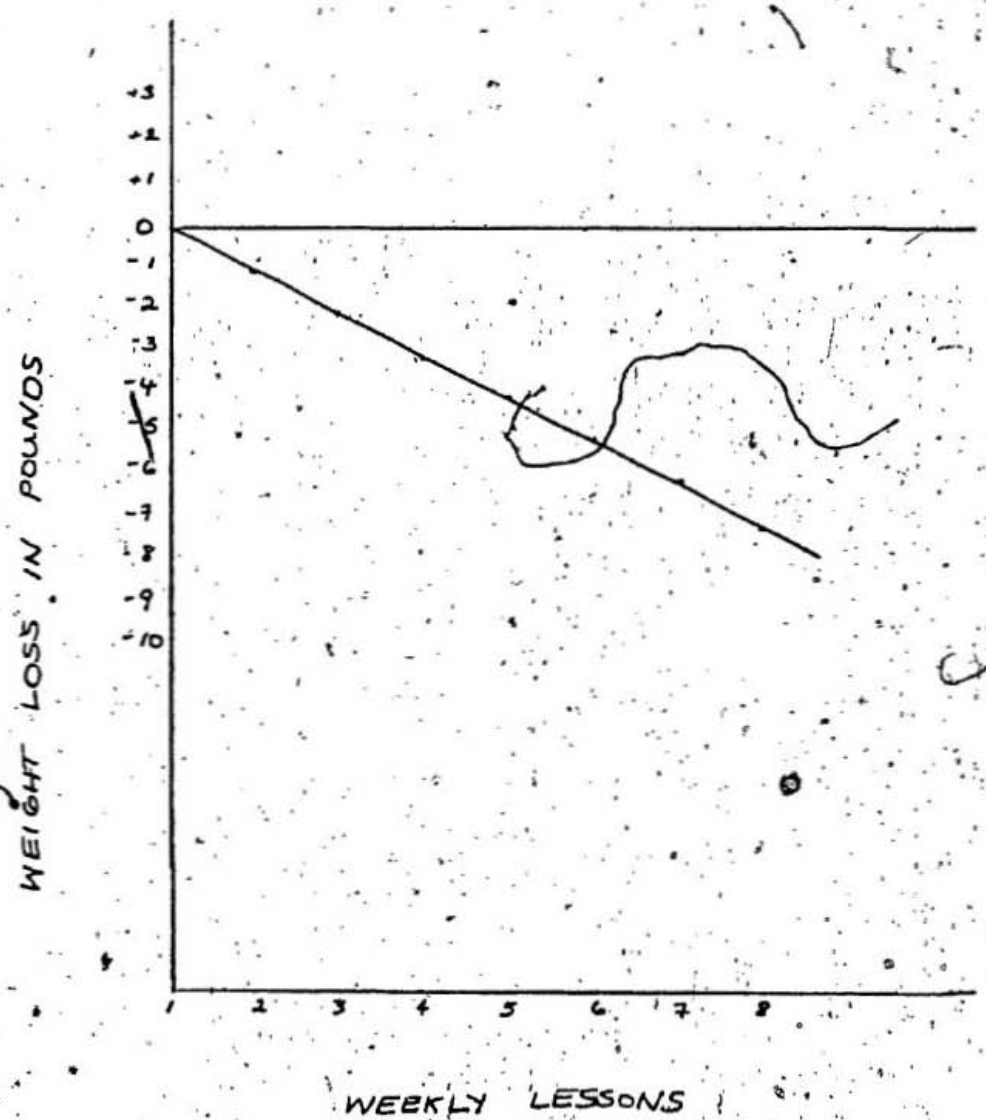
*M/S - meal or snack

+H - degree of hunger (0-none, 3-maximum)

- Body Position: 1 - walking, 2 - standing, 3 - sitting, 4 - lying down

Appendix H

INDIVIDUAL WEIGHT LOSS CHART



Appendix I

FITNESS EXERCISE PROGRAM

These exercises will help you use up calories, as well as tighten up various muscles, (for example: arms, stomach, back, hips, and legs).

To Count: Each return to the starting position counts as one.

1. Stride Jumps

   Start by standing with arms at sides, and feet together, (Figure 1 A). Jump up, and land with arms sidewards to shoulder height, and feet apart, (Figure 1 B). Jump again and return to starting position.

Figure 1 A

Figure 1 B

2. Push-ups.

   Start by lying on your stomach, with hands directly under shoulders, and legs straight, (Figure 2 A). Keep hands and knees in contact with the floor, but push body off the floor until arms are straight. Keep body straight as well, (Figure 2 B). Slowly lower body to starting position by bending elbows. Progress to pushing up with just hands and toes in contact with the floor, (Figure 2 C).

Figure 2 A

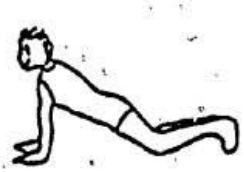


Figure 2 B

Figure 2 C

3. Step-ups.

Start by standing facing a step, (Figure 3 A). Step up onto the step with both feet, (Figure 3 D), then step down again.

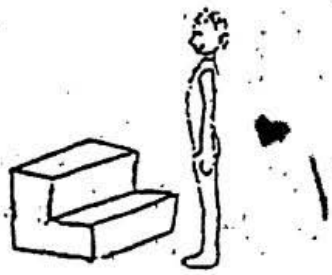


Figure 3 A

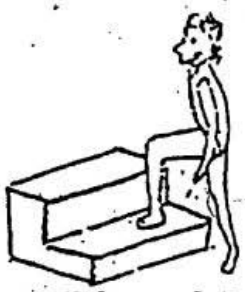


Figure 3 B

4. Sit-ups.

Start by lying on your back with knees bent, and arms over head, (Figure 4 A). Raise arms forward, lifting head and shoulders up until chest is touching knees, (Figure 4 B). Slowly lower yourself to starting position. Progress to doing sit-ups with hands tucked behind head, (Figure 4 C).

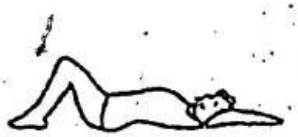


Figure 4 A

Figure 4 B

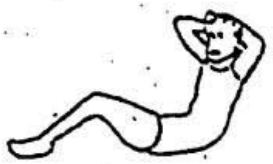


Figure 4 C

5. Burpees.

Start by standing with arms at sides and feet together, (Figure 5 A). Squat down until hands are touching floor, (Figure 5 B). Kick legs out behind you, until arms and legs are straight, (Figure 5 C). Return to squatting position, (Figure 5 B), then stand up.

Figure 5 A

Figure 5 B

Figure 5 C

6. Side jumps.

   Place a piece of tape about two feet long on the floor. Start by standing on the right side of the tape. Keep feet together, and hop to the left side of the tape, then back again.

These six exercises can be done in what is called a "circuit", which is based on individual exercise tolerance. This is the best way to use up calories. Please read these instructions completely before beginning the circuit program.

Testing for number of repetitions:

1. First do as many repetitions of each exercise as you can, within the time limit set in Table I. It is important to do each exercise properly and completely, and to do them at your own pace.

2. Record the number of repetitions you did for each exercise in Table I.

3. After testing each exercise, wait at least two minutes before testing another exercise, so that you are rested and can do as many repetitions as you are capable of.

4. Divide the number of repetitions in half, and record in Table I. This is the number of repetitions you do when you put the exercises together to form a circuit.

TABLE I

	Test and Exercise Time	Maximum Repetitions	1/2 Maximum Repetitions
1. Stride Jumps	30 sec		
2. Push-ups	30 sec		
3. Step-ups	60 sec		
4. Sit-ups	60 sec		
5. Burpees	60 sec		
6. Side Jumps	30 sec		

Circuit Program

1. Complete each exercise within the same time limit as was used for the test, doing 1/2 as many repetiitons as was done in the test. Note that they can, therefore, be done slower.

2. Do not rest between each exercise.

3. Complete the entire exercise regime three times. This should take approximately 13 1/2 minutes.

4. When this program becomes easy, progress by doing more repetitions per exercise, or by doing each exercise faster, so that the entire regime may be repeated four times within 13 1/2 minutes.

Appendix J

Parent's Weight Control Manual

Week 1

I. Introduction

Having you involved in your child's weight control program is a recent and important addition to behavioral approaches to weight reduction. No doubt you have suffered through many attempts by your child to lose weight. These times can be discouraging, especially when the weight is regained after a short while. For this reason, it is important for you to become aware of your child's new program. You can be an important part of your teenager's weight loss attempts. Your child's weight control is important to both of you in terms of life expectancy, feelings of attractiveness, and emotional and physical well-being.

Many parents wonder how they can best help their teenager to lose weight. Some have tried ignoring the problem, being supportive, being hostile, buying diet books, and just plain old getting mad—but usually with no luck. This program is designed to instruct you to be a positive influence on your child's eating patterns, and to teach you how to channel your efforts most effectively into areas

where you can be of considerable influence. Each week your teenager will be instructed to carry out a new set of behaviors and we need you to help. It is critical that both of you carry out your portion of the program. In this way, long-term weight loss is most likely.

II. Rationale for the Behavioral Approach to Weight Loss

Treatment programs for overweight people based on behavioral techniques have yielded encouraging results. Several experts have concluded that these techniques provide the most promising contemporary approach. This program is educational in nature: that is, participants will be instructed in methods designed to change eating habits to ensure long-term weight loss.

In the past, however, weight loss enterprises have been quite discouraging. The explanation is a simple one. Most programs for overweight people rely on drastic changes in a person's lifestyle. Crash diets, fasting, water diets, carbohydrate diets, protein diets, hypnosis, grapefruit diets, "fat farms" and an array of these approaches are likely to be such a burden to an aspiring weight reducer that adherence to a program for a long period of time is quite difficult. Based on this knowledge, the behavioral programs have been effective by altering eating habits.

Habits by definition are long-term, automatic behaviors. When the overweight person alters old habits and develops new more appropriate habits, enduring weight loss is possible.

The primary goal of the program is to teach both of you how to be your own weight loss experts. A systematic and comprehensive behavioral analysis (i.e.,what he/she eats, where, when, how, why etc...) of your child's individual eating patterns will be completed to aid you in efforts to regulate his or her weight. The habit changes will be such that your teenager can live with the new habits comfortably for the rest of his or her life and still maintain a desirable weight.

III. Program Description

This program consists of 8 weekly sessions. Each session will last approximately one and a quarter hours. During the first half hour, your teenager will have his/her weight recorded and homework checked. The remaining time will be spent in a group setting. Each week homework will be given. This homework must be turned in every week in order to receive the full refund because homework completion is an integral part of the program. Also, at the end of each session we will give your child reading material for

you, the parent, and several questions for you to answer based upon what we have sent home for you to read. Your child is to return these each week to recieve a $1 refund.

It is important to note that the techniques and procedures utilized in this program have been tested and proven effective in numerous investigations. The program is based on a sequential learning model. That is, each session builds on the last. Hence, it is important that your child attends all sessions and that you complete your assignments each week. The present program offers a combination of procedures which have been shown to be the best thus far in aiding weight loss efforts. Therefore, we are optimistic about your child's ability to produce substantial weight loss and, even more importantly, to maintain the weight loss. Your assistance is critical in our attempts to reach that goal. If you carry out the suggestions we have made in the Parent's Manual, there will be a much greater likelihood that your teenager will lose a substantial amount of weight.

IV. The Behavioral Model

There may be multiple physical and psychological factors which contribute to a person being overweight. It remains, however, that the only factor characteristic of all overweight people IS that they overeat. The Energy Balance

Model of eating is based on the fact that the body needs a given amount of energy to allow proper functioning. The body expends energy (output) by exercise and through its ordinary functioning. The body takes in energy (intake) when food is eaten. For the body to perform optimally there must be a balance between intake and output.

If the amount of energy taken in exceeds the amount that the body can expend, weight gain is the result. Calories are a measure of energy. When people take in calories, they are acquiring energy, and when people expend energy, calories are lost. Hence, being overweight is simply a matter of taking in too many calories. Overweight people consistently take in a greater number of calories than they expend through exercise. In order to lose weight, a person can decrease the number of calories taken in or can increase the number expended. This program will do both. Only doing one is incomplete. Hence, we will work on decreasing intake and increasing output.

The following are the basic principles of the Behavioral Model:

1) Everybody needs to eat; but the way a person eats is a learned habit pattern. Overeating habits can be discarded in favour of new more appropriate habits.

2) There is nothing common to all overweight people except that they overeat.

3) Most overweight people have at one point or another lost weight. Usually, it is regained when the person returns to his or her original pattern of eating. The goal of this program is to permanently change eating patterns so that weight loss will be enduring.

4) The procedures in this program are very effective when consistently applied. You and your teenager have to make the commitment to devote yourself to the program. A willingness to complete the entire program and to utilize the procedures will determine how much weight will be lost.

The point of view expressed in this manual is that overeating can be conquered by learning new eating habits which can be maintained permanently. The family of the overweight individual can help in this task. Many family members may have, of course, already encouraged, prodded, pushed and yelled at the overweight individual to lose weight. Pressure tactics of this sort will not work and may actually be harmful. But there are ways to help! These will be taught, step by step. Don't go beyond what you have learned. Instead, follow the program and you will learn sound principles which can be of help.

V. Shaping New Eating Patterns

Another important principle is shaping. Shaping refers to making small but attainable steps towards a goal. In weight control programs, it is best to plan a series of small goals rather than trying to reach large unreachable goals. Our final goal is to establish new eating habits. Since your child's present eating habits may have taken several years to develop, they have become automatic and may be difficult to change. We plan to make gradual changes in eating habits, thereby approaching our final goal. If your teenager finds it difficult to achieve a particular goal, it does not indicate a lack of "willpower". It probably means that he or she set an unrealistic goal which should be broken down into smaller, more attainable ones. In keeping with our emphasis on small, realistic goals, we are expecting your teenager to lose between one and two pounds each week. Some weeks, he or she may lose more weight than this—and some weeks less, but if the program procedures are carried out, a 1 to 2 pound loss per week can be expected. It has been shown that people who lose weight in a slow and steady fashion are more likely to maintain the weight loss longer than those who lose large amounts of weight in a short time.

VI. Modeling

Almost everything you or your teenager does is learned. An important way people learn is by observing what others around them are doing. The principle explaining the effect is called modeling. Simply stated, we tend to do what we see others doing. This is especially important for you if your child is overweight. Since an overweight person is very susceptible to external cues to eat, you can display good habits which will help your child avoid overeating. Also, bad eating habits on your part can set the occasion for bad habits on your child's part. Therefore, in an effort to establish new, more appropriate eating habits for your teenager, it is critical that you improve your own eating habits. We will ask you to practice most of the behaviors that your child will be practicing. That is important for several reasons. First, you will be setting a good example for your child and, by modeling appropriate behaviors, it will be easier for him or her to change. Second, your teenager won't feel different or out of place if you are making some of the same changes. Third, your practice of these behaviors will show your child that you are committed to helping him or her with the weight problem. For each of the new behaviors we will explain why it is important for you and your child to establish them as permanent patterns. Also, we feel that it is important for you to understand why we suggest these particular behaviors. We will present the rationale behind each behavior in order

to underline its importance.

VI. New Behaviors for Week One

A. Put your fork down between each bite

There are several reasons why this is important. First of all, eating can sometimes be automatic. Overweight people will often eat substantial amounts of food withoug being fully aware of the quantities of the food, and sometimes will fail to remember what they have eaten. Remember, one important aspect of the program is increasing awareness of what is eaten. Puting the fork down will break up the chain of eating and will increase awareness of food intake. If you or your child eat rapidly, this behavior is particularly important for you, so eat slowly, together. Along with increased awareness comes increased pleasure in eating. By putting your fork down, you will begin to enjoy the qualities of the food that have been obscured by the rapid rate at which you once ate. There is a feedback loop in your body that connects your stomach and brain. When the stomach has had sufficient food, it will notify the brain. The body reacts differently to eating at different speeds. If you eat very rapidly, an excessive amount of food will be taken in before the stomach has a chance to let the brain know that enough has been eaten. Prior to this program, most overweight people eat right past this point. By adhering to the rule, you will be able to feel full with

less. Feeling full with less means weight loss. So, after each bite of food, put your fork or the food itself down and let go. Completely chew and swallow the food in your mouth before you pick it up for the next bite. All foods (bread, fruit, sandwich, etc.) should be put down in the same manner.

B. Pause in the middle of your meal

Sometime during the middle of your meal, take a break. For this period of time, stop eating completely. Start by making this a short break of 20-30 seconds. Gradually increase the duration of your pause until you can take a 2-minute break. Many people find it useful to keep an egg timer at the table so they are reminded to take a break. By doing this, you will give your stomach a chance to signal to your brain the amount you have actually eaten. Also, it will slow your rate of eating which will help break the automatic chain of overeating. It will be harder for your teenager to take a break mid-meal if others sitting at the table aren't doing the same. Also, if you take a break then your child will be less likely to forget or avoid doing it.

Homework

Please give short, concise answers to the following questions and return your answers with your teenager at the next class:

1. What are two main benefits of eating more slowly?

2. From the behavioral perspectfve what is the factor common to all overweight people?

3. Why should you practice the new behaviors along with your teenager?

4. Why do people usually regain the weight they have lost on other diet

Parent's Weight Control Manual

Week Two

I. Exercise and Your Teenager - The Importance of Energy Expenditure

A. The energy balance model

As you learned in an earlier session, weight is determined by the balance between energy consumption and energy expenditure. Successful weight reduction depends upon the ability to increase the number of calories expended. Thus far, the program has concentrated mainly on aiding your teenager in reducing his or her consumption. However, increasing exercise is an integral component of weight control programs, and to some extent may explain their failure.

B. Misconceptions about exercise

Many people believe that exercise is not an important factor in weight loss. To the contrary, weight loss can be greatly facilitated by increasing exercise. When people gain weight, they feel less and less like exercising, which of course increases the rate of weight gain. Conversely,

when your teenager begins losing weight, he or she will feel more like exercising, which in turn will facilitate the weight loss. Another misconception is that exercise increases appetite. In reality, the opposite is true. Research with humans and animals shows that exercise actually decreases appetite for those whose activity level is low. Increasing activity in moderate amounts will serve to lower the daily intake of calories!!!. Hence, an increase in your teenager's activity level will serve three purposes: 1) his or her body will expend more energy; 2) he or she will experience a decrease in appetite; and 3) your child will feel better about himself or herself and will be more likely to stick with the program. People have frequently expressed the opinion that in order to be effective, exercise must be done very strenously, must be exhausting, and must be done at one time. This is also a fallacy!!!. Small amounts of moderate or routine exercise throughout the day are just as effective in helping your teenager lose weight as one period of strenuous exercise. Let's say, for example, that you walk upstairs or walk around the block five times in a particular day, burning up 20 calories each time. This 100 calorie expenditure is identical to 100 calories expended all at once, say doing sprints or fast swimming. Exercise does not have to be a burden and does not mean that your child will have to alter his or her lifestyle considerably.

C. Facts about exercise.

Exercise has profound benefits. When some people begin an exercise program, they expect to shed the pounds at a rapid rate. However, some of the benefits aren't tangible and immediate, but the long-term benefits of exercise are quite impressive. For example, if your child climbs several flights of stairs each day during regular trips to and from classes, she or he may save ten pounds each year.

D. How our society discourages exercise and movement

Canada has evolved into a society of motionless people. Mechanization has made obsolete several occupations that were physically demanding. A multiplicity of "work saving" devices decreases your exercise level and adds excess weight. Elevators, escalators, electric garage door openers, riding lawn mowers, electric can openers, electric knives (to name a few) are in part responsible for the growing rate of obesity in this country. People are accustomed to doing as little exercise as possible. How many times have you driven around a parking lot searching for the space nearest the door? Think of the complaints engendered by the experience of being unable to find a parking space and having to walk several extra blocks. The telephone company promises to save you approximately 70

miles of walking per year by installing extension phones. This also means that they promise you 15 pounds of excess weight in a 10 year period.

II. Programmed Exercise

A. Definition - Programmed exercise means regularly scheduled exercise. If your teenager joins the YMCA, joins an exercise club, embarks upon a course of daily jogging or pushups, he or she is doing programmed exercise. This is an excellent method of facilitating weight loss. In general, however, overweight people are apt to discontinue such activity shortly after it begins.

B. Hazards - When overweight people exercise in an attempt to reduce, they often do too much. Many exert themselves to the point of physical pain. This is an indication that too much is being attempted!!!. It is no wonder that poeple find it difficult to continue such efforts. When exercise impinges excessively upon your daily routine or upon the threshold for pain, then it is doomed to a short life span! The solution is to make exercise more fun and less painful. Exercise should be done in moderation and then gradually increased (as in the class exercise program). Small attainable goals will encourage your teenager to continue with his or her exercise program on a daily basis.

C. Increasing the enjoyment of programmed exercise - Your teenager is more likely to exercise if he or she enjoys it. One way to increase enjoyment is to improve the exercise setting. Your child should exercise in an enjoyable place. For example, he or she could take daily walks in the woods or in a busy neighbourhood where the scenery is both interesting and entertaining. Also, doing calisthenics while watching television or listening to the radio can make the activity less tedious and more enjoyable. Another way to increase enjoyment of exercise is to do it with a partner. You, as parent, can help by providing companionship. Join your child in daily walks around the block or in daily calisthenics. Choose a special time each day as the exercise time and stick with it. Your teenager is more likely to exercise if someone else is also involved. Besides, the exercise will help both of you look and feel better. Above all, praise and encourage your teenager's efforts in any way you can.

D. Your exercise program - Programmed exercise is an important part of any weight reduction program. Your teenager has been given an exercise program consisting of 6 exercises to practice at home on a daily basis. These exercises are designed to increase in difficulty over time at a rate which your child determines, depending upon his or her present physical condition. These exercises help

increase muscle tone and thus decrease that flabby look that often accompanies significant weight loss without exercise.

III. Routine Exercise

A. Definition - Routine exercise refers to the amount of energy people expend in their everyday activities. If your child walks one block from the bus each day, that is routine exercise. As we mentioned in the last section, many people who get involved in rigorous programmed exercise find it difficult to continue for any length of time. In contrast, increasing the amount of activity in one's daily routine is much easier, and is more likely to become a stable behavior pattern. If your teenager can develop new activity habits, it will be considerably easier to control his or her weight.

B. The importance of routine exercise - Altering activity level is your teenager's only way to influence the amount of energy expended. It is beneficial for both of you to concentrate your efforts on your child's day-to-day activity. There are innumerable ways to improve amount of routine exercise, and you can be an important factor in your child's efforts to do this. There are a few examples listed under Teenager's New Behaviors for Week Six.

Teenager's New Behaviors for Week Two

1. When you go shopping with your parent(s) try parking further from the door; first in small amounts, then gradually increasing the distance until you have a good healthy walk.

2. If you are riding the bus, get off at the stop before the one you planned. When getting on the bus, walk to a bus stop several blocks from where you usually get on. Likewise, if someone is giving you a ride somewhere, have them drop you off a short distance from your destination.

3. Use stairways as often as possible instead of elevators and escalators. If you are going to the 5th floor of a building take the elevator to the 4th floor and walk up 1 floor. When returning, get off on the 2nd or 3rd floor and go down the stairs the rest of the way.

4. At home don't let things accumulate at the top or bottom of the steps in order to make one trip. Make several trips. Instead of sending others up the stairs to get

something, get it yourself.

5. If you are at school and wish to get a drink or use the restroom, go to the next floor to do it (if you have the time).

6. Don't use shortcuts when walking!! Instead of cutting through a parking lot, a yard, or a park, walk the extra distance.

These are only a few of the many ways you can increase your routine exercise. Give some thought to devising your own methods which will fit into your lifestyle. You may notice that none of these activities require enough time to be burdensome and are not overly strenuous.

Parent's Homework for Week Two

Please five short answers to the following questions and return you work with your teenager at the next class.

1. How many times this week have you done programmed exercise with your teenager?

2. Name a couple of ways you and your teenager could increase your routine exercise?

3. What are two advantages of exercising?

Parent's Weight Control Manual

Week 3

I. Awareness of Your Child's Eating Patterns

An essential factor in weight loss is keeping an accurate record of everything that is eaten. The major goal of this program is to teach your teenager new eating habits which will replace the old ones. In order to do this, we need to find out in what kind of situations your child usually overeats. For the past two weeks she or he has been recording meals, snacks, time, location, feelings and activities when eating. In future sessions, your child will be learning to change his or her eating habits by altering the times, locations and activities which are connected with eating. The first step in accomplishing this will be to become aware of all the events surrounding his or her eating events. If, for example, we determine that your child snacks while watching television, new behaviors can be developed to offset this tendency. Remember, your own eating behavior in the presence of your teenager has a profound influence on him or her. Hence, it is important for you to become aware of your eating behavior when you are around your child. In fact, for the next week, you might

record meals, snacks, etc. in a notebook so that you will become aware of your eating patterns. It is important for you to see whether or not you are eating the right foods (when in your child's presence) because you serve as a role model for your child.

II. Internal vs. External Signals to Eat

A. Research findings

It is commonly assumed that people eat when they are hungry or, in other words, when the body gives the signal that it is time to eat. Research has shown, however, that overweight people and non-overweight people greatly differ in this regard. Non-overweight people are much more likely to report humger in response to actual stomach contractions than are their overweight counterparts. Stomach contractions are a physiological measure of when the body is in need of energy. Overweight people are much less sensitive to this internal biological cue than non-overweight people.

In contrast, situational factors have been discovered to play an important role in determining the eating patterns of the overweight. That is, there are certain external signals (cues) which prompt overweight people to eat even

when their body is not physically hungry. An interesting study which highlights this finding was done to determine how important time is to eating patterns. We are all aware that hunger arises at particular times of the day; but it could be because these are regular intervals when the body needs energy, or because these are times when we are used to eating. In this experiment, overweight and non-overweight people were seated together in a room around dinner time. Unbeknown to them, the clock was set either 1 hour fast or 1 hour slow. When the clock was 1 hour ahead, the overweight people reported hunger substantially more than the non-overweight. The non-overweight people did not respond to the clock on the wall (external signal), but to their internal hunger cues which told them it was not time to eat. Amazingly, when the clock was slow, the overweight people reported less hunger than the non-overweight people. Again, the non-overweight people were responding to their internal signals of hunger which were not influenced by the false time on the clock.

There are many more examples of experiments which suggest that the overweight are more responsive to external signals to eat. In fact, it is now widely assumed that overweight people have internal and external cues, the external cues are much more powerful.

B. Implications for weight control

It now appears that overweight people overeat because they are more sensitive to food signals than non-overweight people. There is no "obese personality", but there are environmental conditions which prompt overweight people to overeat. Therefore, weight control can be brought about by making changes in the environment so that new eating patterns that are more appropriate will become more likely. The goal of a weight control program, then, is to alter the environment rather than to change inner psychologicaal factors.

You are an important part of your teenager's environment. You can be very helpful in his or her weight loss efforts by making small changes in your own behavior. Some of these behaviors may be awkward to change, but you and your child will both benefit if you are able to change. As we tell your child, we are not interested in having either of you develop more "willpower", but in having you develop self-control skills by learning how to arrange the environment in order to produce new eating habits. You and your teenager are both important in this effort and when the weight comes off, it will be because you are each changing your habits.

C. Program goals

An important goal of the program is to increase new eating patterns rather than to decrease old ones. This is because it is much easier to develop a new habit than it is to forget a habit that you had for years. Some of the new habits you and your child develop will be incompatible with old habits which means that they cannot occur at the same time. In these cases, the old habits will naturally weaken. It is very important that you recognize your child's progress in the program is not measured only in terms of weight loss, but also in terms of how much his or her habits are changing. Weight loss is very unstable, and at times even the most conscientious person will fail to lose weight for a short period of time. In the long run, however, those who stick to their program lose weight. So, it is most important that your teenager change bad habits and weight loss will inevitably come. That is why we check the food diary each week, and why the daily log will show us those who will lose weight and those who will not.

Since increased sensitivity to external eating signals is mainly responsible for weight problems, it is crucial that these signals be changed. This is where your efforts should be aimed. The new weekly behaviors that we give your child will facilitate these efforts. The more effort he or

she puts forth on these initial stages, the more quickly the new behaviors will become habits. Your teenager will become his or her own weight control therapist which will permit permanent self regulation of weight.

III. Teenager's New Behaviors for Week 3

A. Eat all food in the same place

Pick a certain spot in your kitchen, dining room, etc. where you wish to eat. Eat only in that one place. The more specific you can be, the better. Pick a certain chair that is yours just for sitting in when eating. Do not eat anywhere else such as in the bedroom, recreation room, or living room. Reserve your place just for eating. Do not do anything else in your eating place. Pick out a "designated eating place" at school if you eat your lunch there. All meals and snacks are to be eaten at this designated place. Overweight people associate eating with places and situations. You may find yourself becoming hungry each time you are in a certain situation such as watching TV, reading a magazine or listening to records. It is important to break these associations so that there are a minimum of places which prompt you to eat. Since you do not want to associate other activities with eating it is important to do nothing but eat in your designated eating place.

B. Change you seating place at the table

If your designated eating place is the regular dining table, change your habitual eating place at the table. If

you sit at the head of the table, change to the side, if you sit on one side, change places with someone on the other side. This may make things a little confusing for a while, but it also will break up a lot of longstanding cues at the table.

C. Eat at the same time each day

Plan a schedule of when you are to eat and stick to it. This includes snacks as well as meals. If you know you will be hungry at 10 p.m.then plan a snack at that time allowing for it when calculating your nutritional requirements for that day. Much of an overweight person's problem can be attributed to eating at irregular and unplanned times. When doing this, a person will take in many more calories than he or she is aware. If you know exactly when you are to eat, you will be less likely to feel the need for something in between. Also by planning eating times, you will decrease the number of times of the day you associate with eating.

D. Do nothing else while eating

When eating, do not engage in any other activities such as watching TV, reading or writing. It is acceptable to visit with friends and family while eating. If there are activities you usually do while eating (such as watching

your favourite TV program), plan to eat first and then watch TV. Again, overweight people are more sensitive to signals telling them to eat. For you, sitting down in front of the TV may be a signal to eat. When these associations and signals become so strong, then you will be likely to eat even if your body is not physically hungry. Eating is to become a behavior unto itself. In other words, eating will become a more pleasurable and desirable behavior if all the distracting stimuli are not present. This can only happen by doing nothing else while eating.

IV. Parent's New Behaviors for Week 3

In line with your teenager's new behaviors, there are several behaviors which you can use to help him or her. Of course, it is not necessary to completely change your own eating habits, but it is important to use these new behaviors when you are in the presence of your child.

A. Eat all food in the same place

Remember that overweight people respond to signals that tell them to eat. One of those signals is watching you eat. When you eat in many places, your teenager will associate eating with those places. So, when your teenager is around, eat in one particular place.

B. Eat at the same time each day

Your teenager can also associate eating with times of the day. If there are specific times each day when you both eat, then he or she won't be as likely to do excess eating at other times. If you can both eat at the same times each day, you can decrease the cues telling your child to eat.

Homework for Week 1

Please give short answers to the following questions and return your answers with your child at the next class.

1. Who would be more likely to become hungry watching TV commercials about food, an overweight or non-overweight person?

2. Why is it important to start practicing new behaviors as soon as you learn about them?

3. On how many of the days of this week were you successful in following the parent's instructions to eat in only one place when in the presence of your child?

4. Name some things that cue you to eat (or want to) when you are not really hungry.

Parent's Weight Control Manual

Week 4

I. Your Child's Weight Control Program and Your Attitude

Thus far, we have given you some new behaviors which can help your teenager lose weight. It is important for you to model good behavior for your son or daughter. It is also important to know how to react when he or she does well or poorly in the program. The best rule of thumb is to be either neutral or positive in your statements about your child's eating behaviors. Avoid being negative!

An interesting research project examined interactions between spouses and their overweight partners at the dinner table. The results revealed that these spouses were over 12 times as likely to criticize their partners' eating behavior than they were to praise it. It is understandable that families of overweight people are likely to be critical of their overweight relatives' eating behaviors. They often try to be supportive and then become discouraged when weight loss doesn't occur. However, it is important not to be critical of your teenager!

So, remember to be either neutral or positive. If you

are not pleased with something your teenager does - remain neutral. If he or she is not carrying out a portion of the program, there is no need for you to react. Try to ignore mistakes. When your teenager is successful with some part of the program, be positive! It can be helpful for you to praise your child for good behavior. Remember the principle of shaping. We are not interested in wholesale changes in your teenager's behavior and we are certainly not going to set our goal as dramatic short-term weight loss. Rather, the goal is to make small changes in eating habits. If your teenager has trouble totally accomplishing a new eating pattern, show praise for making progress in small aspects of that behavior. Let's take an example of putting the fork down between every bite. Don't wait until your child does it every time before you praise the behavior. In fact, initially you should praise him or her every time the behavior occurs. Then gradually start praising after blocks of the behavior occur until finally he or she is laying the fork down most of the time.

Remember that your teenager will become discouraged at those times when the weight just won't come off fast enough. It is at these times when your support for your child's habit changes is most important. Even though he or she may not lose weight during a given week, if habit change is occurring, the weight loss will come eventually.

II. The ABC's of Behavior

Any habitual behavior pattern (including overeating) can be broken down into three components. These are what we call the ABC's of behavior. The A stands for antecedent or what happens before the behavior. B is the behavior itself, and C stands for consequence or what happens after the behavior. An example might help clarify this. Let us say your teenager is walking through the kitchen and sees a delicious looking donut on the counter. He or she decides to eat it and then feels satisfied and content. The antecedent A is the actual sight of the donut, the behavior B is eating the donut, and the consequence C is the immediate satisfaction of eating. All three components of a behavior are very important.

Most weight reduction programs will concentrate solely on one of the components. For instance, diets attempt to alter the eating behavior itself by advising people to eat different foods. "Fat farms" attempt to alter antecedents by taking you away from the situations which prompt eating. Positive thinking approaches attempt to alter the consequences by having people think differently about their eating. This program will work at changing all three! This is the most powerful way of ensuring long-term weight loss, and such an approach is also the most complete.

As we have been advising you and your child to do, we will break the antecedents, behavior, and consequences into small parts which we can shape into new eating patterns. We could simply tell your teenager to not expose himself or herself to innapropriate food cues, but this is much too big a step when habits are so ingrained. Rather, we are giving your child small and easy behaviors which he or she will be able to carry out. We will present a few new steps each week, and since each step builds on the last, it is important not to miss any portion of the program. If you have difficulty with a new behavior , it is probably because you are taking too big a step. In this case it is best to backtrack and take a smaller step.

We will first be concerned with the antecedents (cues) of overeating. These cues set the stage for your teenager's eating. Before this program they set the stage for poor eating habits. Presently, we will change them to set the stage for new weight control habits. Another name for altering antecedents is cue elimination or stimulus control. This means we want to eliminate the cues in the environment that lead to overeating. In last week's lesson some stimulus control procedures were introduced, new procedures will be given in this and next week's lessons.

Goal: Make the act of eating more conscious

Week 3

Teenagers New Behaviors for Week Three

1. Ask for Food:

Never accept food from another person unless you ask for it. Make each encounter with food a voluntary one. In restaurants, take the initiative- ask the server not to bring potatoes, or to take away the bread. If it is not on the table, you won't nibble on it while you wait for your meal.

2. Smaller plates

Use smaller plates. The size of the plate you use has an influence on how you perceive the amount of food you are eating and how full you feel after a meal.

3. Leave table immediately after eating.

4. Remove serving dishes from the table.

5. Store food out of sight.

Parents Behaviors. Week #4

1. Leave the table immediately after eating. You will be a model for your child.

2. Do not offer food to your teenager. Let him/her ask for it. This will make the art of eating a conscious one for your teenager.

3. Remove all serving dishes from the table. This will reduce the number of cues to eat more even if your teenager doesn't need the extra food.

4. Store all food out of sight. Do not leave food on counters, etc... This will help prevent temptations for your teenager.

Homework for Week 4

Please give short answers to the following questions and return your work with your teenager at the next class.

1. What would be the best thing to do if you found your teenager eating a piece of cake a half-hour after supper?

2. What are two advantages of using smaller utensils?

3. Where would be the best place to store cookies, cake, etc.?

4. Have you helped your teenager to obtain a smaller plate, etc.?

5. Name a few cues which may lead to poor eating habits.

Parent's Weight Control Manual

Week 5

I. Your Teenager's Rate of Progress

You and your child have now devoted four weeks of effort to this weight control program and both of you should be proud of your teenager's progress. However, if either of you are less than happy with the weight loss achieved so far, then stop now and reassess your child's weight loss goals. Expectations of rapid weight loss can be the dieter's worst enemy, because they are often too high. High goals lead to discouragement which can hurt any further weight loss attempts, so beware! Both of you should realize that the rewards in weight loss are not always immediate and that even the most conscientious dieter will find that weight loss is at times painfully slow. Some of the most important benefits from a weight control program come after an extended period of weight loss. Indeed, your teenager may have to lose upwards of 15 or 20 pounds before you will even notice, or before he or she will feel successful. These feelings are most often the reason why people drop out of weight control programs!

Since our goal is long term weight loss, we encourage

slow and steady progress. Those for whom weight loss is gradual but persistent are better off than those whose weight loss is rapid and abrupt. It is a much better sign to lose 10 pounds in 5 weeks than it is to lose 10 pounds in 1 week. Rapid weight loss is usually short-lived! Slow and gradual weight loss is most likely to last forever! That is why a 1-2 pound weight loss per week is ideal!

To overweight people the immediate benefit of eating is oftentimes more powerful than the long-term detrimental consequences. This leads to the attitude "this little bit won't hurt", and hence inappropriate eating. You are aware of how easy it is to consume 100 calories. If your teenager consumes 100 calories per day over and above what his or her body needs, this will result in a 10 pound weight gain over a period of one year. Your role as parent is particularly important at this point in the program. Oftentimes relatives of overweight people fall into a pattern with the overweight person, as one diet after another is tried and failed. This pattern is one of encouragement in the early stages of the program. The trouble comes when failure is followed by criticism, which in the long run leads to even more overeating and hence overweight. One key here is to encourage not criticize. Your teenager is probably his or her own best critic and does not need any extra help in that area. Besides, the fact that your child is here means that

losing weight is a priority. So, don't get discouraged and fall back into criticism when he or she has a bad week or eats too much. Both you and your child should take the weight control problem one day at a time. In the long run, your teenager's goal will be reached in this manner.

II. Review

Last week we discussed the importance of being either positive or neutral towards your teenager concerning his or her eating behaviors. It is particularly important that you not criticize mistakes, and praise success and attempts to comply with the techniques taught in this program. Praise even the smallest positive changes in his or her eating behaviors. Remember that changes in behavior, although slow, will assure permanent weight loss, and constant criticism will only serve to discourage rather than encourage the positive habit change. Last week we discussed the three components of behavior which include the antecedent(A) or what happens before the behavior, the behavior itself(B), and the consequences(C) of this behavior. This program concentrates on all three of these components as they relate to overeating. Our first concern focuses on techniques designed to deal with the antecedents or behaviors that precede inappropriate eating patterns. We want to help your teenager change these cues that lead to

poor eating habits to those that encourage appropriate ones. In the last two lessons we explained several techniques. This week we are giving your child four new techniques.

Teenager's New Behaviors for Week Five

A. Set some food aside

All of us have been strongly conditioned to eat everything on our plates, and to feel guilty when we leave some behind. Whether for economy, aesthetics, or all the starving children in the world, almost everyone has been taught this lesson. Not wasting food is usually a very well-learned irrational idea. It implies that if we finish our meals and eat everything on our plate, it will benefit someone else. This leads us to believe that "If I don't finish everything on my plate, than I am bad." How this belief started is not important. What is important is that many of us are stuck believing it. We end up eating more than we need, because we feel we must finish and not leave food to be thrown away. To start breaking this habit, to begin to free yourself of the compulsion to eat everything you are served, leave food behind at each meal. Start out slowly, one pea, a spoonful of potatoes, or a crust of bread from your sandwich. It may be necessary to set the leftover food aside at the start of the meal and cover it with plastic wrap so you won't forget to leave it behind.

B. Throw food away

Throw away any food left on your plate immediately after the meal. Put the scraps in the garbage can. In this way they won't linger around to be nibbled on later in the evening or the next afternoon. If you do keep something, like a chicken wing or a serving or peas, use it as a planned snack or part of your lunch the next day. Put it in an opaque container. Don't let food hang around the house right under your nose. It will reach out and cue you to eat.

C. Seconds

For those of you eating large portions, especially at dinner, divide the food you would normally serve yourself into two servings and go back for seconds when you finish the first half. This introduces a delay and hopefully a thinking step in the middle of the meal, e.g., "Do I really want seconds or thirds?" It has the added advantage of keeping the second half of the meal warm and more enjoyable when you do eat it. Don't forget to leave some of each portion behind.

D. Minimize contact

Try to arrange your food contacts in ways that minimize the chances for impulse eating. For example, when you fix

yourself a sandwich for lunch, put away the bread, butter, etc. and clean up the mess before you eat your sandwich. This will greatly reduce the likelihood that you will make a second sandwich. Food out of sight is often food out of mind.

Parent's New Behaviors for Week Five

A. Don't ask your teenager to be a food dispenser

When you or others in your family want food, don't ask your teenager to get it. This includes high-calorie snacks or desserts for anyone. If other family members must have food for school, have them pack it themselves. If you have guests and you want to serve them food, ask another member of your family to help. The purpose of this rule is to further eliminate some of your teenager's contacts with food. If you minimize the number of times your teenager is confronted with food, the opportunities for unplanned eating will be reduced.

B. Clear remaining food directly into the garbage

When the meal is finished, clear all the remaining food directly into the garbage. Avoid bringing the plates into the kitchen and leaving them on the counter. If this is a time when your teenager is prone to clean up the scraps by eating them, ask someone else to clear the dishes or do it yourself.

C. Set some food aside

Leave a bit of food behind at each meal. This will show your teenager that it is okay with you to follow the instructions to leave food behind and will help him/her break the compulsion to eat everything on the plate.

Remember how important it is for you to model the new behaviors for your teenager. It may not be necessary for you to adopt all these new behaviors during all your meals, e.g., you may also wish to model setting half of your dinner aside as a second helping.

Homework for Week Five

Please give short answers to the following questions and return your answers with your teenager at the next class.

1. How successful have you been in clearing food directly into the garbage after meals?

2. What were your feelings about deliberately leaving food on the plate to be thrown out?

3. What type of food do you usually have on hand for snacks?

4. Are you still setting your teenager's place with a smaller plate, spoon, etc.?

Parent's Weight Control Manual

Week 6

I. Snacking

Most snacks are usually eaten in response to psychological, not physiological hunger. The hunger pangs that lead to snacking are usually triggered by cues, or environmental stimuli. These hunger cues are specific to certain situations and are time limited. In other words, if you move away from the situation, or don't respond to the cues by eating, the feeling of hunger will go away. For example, imagine walking down the street on a sunny morning. Suddenly you pass a bakery shop. The sight of fresh pastries in the window and the smell from the open door are very powerful cues. They cause you to react with a sensation of hunger even though ten seconds before you had no thoughts of food or hunger. If you remove yourself rapidly from the situation, the hunger will fade away. If you don't leave, but stand in front of the shop in the presence of the cues long enough without responding to them by eating, the hunger will also go away.

Snacking may not be a problem for your teenager at this point. However, there are two situations where it may

reemerge, during vacations or holidays and during a meal. There is no difference between eating that larger dessert or third piece of chicken now, "because it is on the table," and having it as a snack later, "because it is in the refrigerator". Your teenager has been practicing eating only what he/she needs—leaving the rest on the table. Being able to control the impulse to eat when not hungry will dramatically decrease caloric intake without depriving your teenager or causing him/her to feel hungry. You have learned how hunger pangs are usually induced by stimuli in the environment. By being able to recognize the cause of hunger, your teenager will be able to combat it more effectively.

Several investigators have made basic observations about the biology of hunger that bear directly on impulse eating. They asked individuals who had gone without food for a standard amount of time to drink an entire meal of chocolate liquid through a straw. These people could not see what was in the food container, and had no way of knowing how much liquid they were drinking. They also did not know the calorie content of the drink; it could be varied tenfold before there was a difference in taste. In the experiment the liquid always looked, felt, and tasted the same. They simply drank the chocolate flavoured liquid until they felt full. The results of the experiment were

suprising. People drank the same amount of fluid every day despite large changes in calorie content. Volume or bulk appeared to be the factor that told people that they were satisfied.

Another experimenter found that belief is a critical variable in the feeling of being full. If people thought that a liquid meal was high in calories, they were satisfied with less than if they believed it was low in calories. People only begin to really feel physiological hunger after they have been on a low-calorie liquid for several days.

These experiments appear to contradict many current ideas about hunger; for example, the notion that hunger is satisfied by raising your blood sugar. At the present time, no one knows how the brain senses fullness. Volume is not the entire answer, but it is important. This phenomenon can be made use of in several ways. When your teenager has an overwhelming urge for a snack make sure it has volume. Precede each snack with a glass of water, a diet drink, or some food with volume and few calories. If it is psychological not physiological hunger, this will help your teenager ignore the pangs. Eventually, whatever is cueing hunger will begin to lose its power-it will no longer be rewarded with food. The volume experiments suggest a strategy for controlling meals. Include some bulk, either

liquid or solid, like a large salad, before the main course. This will provide the sensation of being full sooner than if you eat in the reverse order.

The technique of incorporating bulk in your diet must be used in conjunction with the techniques introduced previously. There is no reason to inhibit the hunger response unless the habit of eating only in response to hunger is being developed. To put it another way, there is little point of your teenager alleviating his/her hunger by eating a salad first, if he/she still feels compelled to eat everything on the plate, or still eats everything because his/her attention is drawn away by another activity like reading.

Another technique for snacking is food substitution: using low-calorie foods for snacks. The decision of what to eat for a snack can be made on the basis of how many calories your teenager thinks are in the foods available. Since the caloric content of foods is not intuitively obvious, effective snack substitution depends on caloric knowledge. Your teenager will be given a pocket calorie counter to aid in this decision process.

A great number of snack inhibiting techniques have been introduced in the past four lessons. Although these were

introduced in different contexts, they can be applied to impulse eating in any situation. The techniques most commonly used to combat impulses are listed in Teenager's Behaviors for Week 5.

II. Teenager's Behaviors for Week 6

A. Introduce an eating delay. Take note of the time when you feel hungry and have your snack only after you have waited a pre-determined amount of time. Progressively increase the length of time before your snack. By next week you should be waiting at least 15 minutes before you have a snack.

B. If you snack, put the food down between bites, take longer to eat the snack, and enjoy the food. If you permit yourself to do this, you won't feel guilty about eating, and you will tend to eat less over a longer period of time.

C. Snacking only at your designated appropriate eating place is a very effective way to cut down on extra eating.

D. Plan your snack intake to decrease the strength of your impulses.

E. Leave some of your snack behind-part of a cookie, a piece of popcorn, a bite of cake. When you are done, throw

it away.

F. Precede each snack with a glass of water, a diet drink, or some food with volume and few calories.

G. Check the calorie content of your snack.

If it is high in calories, substitute a lower calorie snack.

In other words, control your environment. Don't let it control you!!!!!!

III. Parent's New Behaviors for Week 6

A. When snacking in the presence of your teenager snack only at your designated eating place. Remember the powerful effects of modeling appropriate behavior.

B. Help your teenager to select low calorie-high bulk food to be eaten preceding meals and snacks, e.g., lettuce salads, diet drinks (be sure it really is a diet drink, check the label for calorie content),etc.

C. Don't buy quick foods - all foods should require preparation. When you buy food to bring home, make sure it isn't food that can be eaten quickly. The more preparation involved in fixing a particular food, the less likely your child will be to eat excessive amounts. If you feel it is necessary to buy problem foods for yourself or other family members, keep them out of sight at home, or place them out of reach.

D. Eliminate liquids usually consumed with the main meal. A serving of juice or other liquids may be consumed before or after the meal, but should be decreased during mealtimes. Liquids aid in the digestion of food, so by eliminating or decreasing liquids, your teenager will increase the feeling of being full. Also, there is a

tendency for some people to wash down their food without fully chewing it. By decreasing liquids, your child will have to chew more and will therefore increase his or her enjoyment of eating. It's all right for the normal weight members of the family to drink at meals if they must, but don't bring a pitcher to the table. If you must drink something, bring a small glass of it to the table and if you need more later, get up and get it.

Remember how important it is for you to model the new behaviors for your teenager. It may not be necessary for you to adopt all these new behaviors during all your meals. However, the more of them you can use when you are in your teenager's presence, the more likely your child will be to lose weight and keep it off forever.

Parent's Homework for Week Six

1. Name four low calorie snack foods on hand in your kitchen.

2. Put the following snacks in order according to their suitability for dieters: chocolate bar, ice cream, potato chips, peanuts, diet drink, banana, celery sticks, popcorn.

3. Does your teenager drink liquids with the main course of a meal? If yes have you noticed him/her changing this habit?

4. What foods should be on hand to satisfy your teenager's hunger between the time he/she comes home from school and eats dinner?

Parent's Weight Control Manual

Week 7

I. Developing Incompatible Behaviors

As we mentioned earlier, we are developing changes in the ABC's of your teenager's behavior. We gave your child suggestions about how to change the antecedents (signals) of his or her eating in earlier sessions. In this session, we want to alter the behavior itself. We do this by developing behaviors that are incompatible with overeating. Having two behaviors that are incompatible simply means that they cannot occur at the same time. For example, a person cannot swim laps and eat a snack at the same time. At the times your teenager is likely to eat, it is important to have a supply of incompatible behaviors at his or her disposal. The first step in being successful at this is to recognize the "urge" to eat. Being able to identify the urge to eat can be a tremendous help to your child. It can act as a signal to use the incompatible behaviors. The following is a list of several behaviors you both might employ to avoid overeating.

A. Make a list of enjoyable behaviors for your teenager to do when she or he gets the urge to eat.

The reason eating takes place at a specific time is that at that moment eating is the most pleasurable activity available. Make a list of things your teenager enjoys doing. Examples might be reading, watching TV, calling friends, writing letters, doing hobbies, bowling or taking a walk. An activity from this list should be immediately engaged in whenever your teenager starts to feel hungry. Chances are that the hunger pangs will be forgotten when his or her mind is otherwise occupied. You can be an important influence on your teenager by cooperating with his or her attempts to divert concentration from eating to other pleasurable activities. Help your child make a list of activities which are incompatible with eating. Some of these might be things you enjoy doing together, and your presence might make an otherwise boring activity pleasurable for him or her. For example, go on walks together, exercise together, etc. Also, when your teenager wants to do something from the incompatible list, try to do what you can to make it possible.

B. Plan your day around times when your teenager will be hungry.

It is crucial for you and your child to plan the day around times when he or she is likely to eat. You can look at the Food Diary and determine these times, and then plan

the day so your child will have something else to do. Let's say, for example, that you and your teenager do many errands on Saturday morning and then are tired and bored on Saturday afternoon. A good plan would be to do part of the errands in the morning and the remainder of the errands in the afternoon. In so doing, you are not leaving large blocks of time with nothing to do, and you are pre-planning by having your teenager busy at those times she or he is most likely to eat.

C. Help your teenager avoid feelings that prompt hunger.

Many overweight people report that they eat in response to certain feelings. They may eat more when they are depressed, lonely, angry, etc. It is important for your teenager to avoid these situations by planning other things. If there are times or situations when he or she is lkely to feel any of these feelings, your teenager should plan to do something enjoyable. Involvement in clubs, groups or hobbies often helps to relieve feelings of depression or boredom and is a welcome alternative to sitting around and feeling bad about yourself. There are three Boys and Girls Clubs in town which have a very modest membership fee, approximately $1-$2 per year, and provide a place for your teenager to meet friends and participate in athletic, artistic and social activities.

- You may be able to play a role in your child's efforts to plan the day and to avoid feelings which lead to overeating. You should let him or her know that you are available, but try not to be pushy. You can also be of help by trying to discern patterns of overeating. You might notice, for example, that whenever you and your teenager have a disagreement, she or he is comforted by eating. If so, you could try to avoid these arguments or restrict them to times when your teenager is not likely to be hungry. You might also point out the pattern you see to your teenager (but not critically) and offer your help in trying to think of an alternative behavior.

II. Helping Your Child Feel Good About Him or Herself

No doubt you are aware that being overweight often leads people to feel bad about themselves. This feeling can create depression which in turn can lead to overeating. Hence, it is important for your teenager to feel good about him or herself. This is easier said than done, however, and we cannot magically improve his or her life enough to prevent those feelings from occurring. However, during the time period when your child is trying to lose weight, the good feelings will be totally dependent upon the goals that are set. You can help your teenager achieve good feelings by following this simple rule: Give praise for appropriate.

eating and exercise behaviors, but let slips and mistakes go by without criticism!!!!! Let your child know that you think he or she is a good person who is capable of reaching whatever goals have been set.

III. Your and Your Teenager's Goal Should be Habit Change - Not Weight Loss

The goals you and your teenager set for this program will in part determine whether you succeed. If the goal is dramatic and visible weight loss, you are setting yourselves up to be discouraged. However, if both of you choose to change your habits, you will have goals you can reach, and each of you will be able to feel good about yourself. For example, if during a particular week we suggest that you and your teenager put down your forks between bites, then consistently doing that should be your goal. In so doing, you both will be able to have a feeling of accomplishment and will feel better about yourselves. This will further encourage you to continue involvement in the program. On the other hand, if you both want to see visible weight loss, you will seldom be rewarded during a given week. So, your goal should be habit change. The weight loss will happen with time. This is important for parents in two ways. First, it points out that you should praise your teenager for positive changes in behavior!!! Concentrate on taking

each day one at a time!!! Each offers a new opportunity for progress. Don't set your teenager up for failure. Set you expectations for your child within reach. Secondly, the goals you set for yourself are important. Your own goal should be to change your behavior in the way most likely to help your teenager.

You shouldn't be watching the scale as much as making sure you are doing your part each day !!!!

Parent's New Behaviors for Week 7

A. Help your teenager think of incompatible behaviors.

B. Plan your day around times when your child will be hungry.

C. Help your teenager avoid feelings that prompt hunger.

Teenager's New Behaviors for Week 7

A. Make a list of behaviors which are incompatible with eating. These can be both enjoyable and necessary behaviors. Use one of these behaviors to break the chain of behaviors that lead to eating when your body does not need food.

B. Plan your day around times when you will be hungry. Plan to be doing something incompatible with eating during those times of the day you usually find yourself snacking.

C. Avoid feelings that prompt hunger, or plan some activity for those times when you feel depressed, angry, etc.

Teenagers New Behaviors for Week 7

D. Gradually increase the time between the urge to snack and your actual eating to 10 or 15 minutes. While you are waiting to eat do something else. Hunger pangs are short-lived and if you delay eating by 10 or 15 minutes, the urge to eat will diminish with time.

E. Carry no change and little cash when away from home. This will prevent you from buying junk food that you really do not need.

Parent's Homework for Week 7

Please give short answers to the following questions and return your work with your teenager at the next session.

1. Name 3 things you and your teenager can do together which are incompatible with eating.

2. Are there any topics not covered in this course that you would like to have learned about?

3. Will you be out of town this summer? If so will you please let me know the approximate dates. I will be calling each teenager in 4-6 weeks time to come in for a weigh-in and would like to be able to contact everyone.

4. Please complete the enclosed Food Management Questionnaire. Remember to return it via the mail. Thank you for your cooperation and support.

Appendix K

Name: _____

Maintenace Behavior Checklist

Week One

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. food down between bites							
2. Pause in middle of meal							

NOTE: Remember to return these with your food diaries.

Name: _____

Maintenace Behavior Checklist

Week Two

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. food down between bites							
2. Pause in middle of meal							
3. Increase routine exercise							

NOTE: Remember to return these with your food diaries.

Name: _____

Maintenance Checklist

Week Three

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. Food down between bites.							
2. Pause in middle of meal							
3. Increase routine exercise							
4. Eat at designated eating place							
5. No other activity while eating							
6. Eat at same time each day							

Note: Remember to return this with your food diaries.

Name: _____

Maintenace Behavior Checklist

Week Four

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. Food down between bites.							
2. Pause in middle of meal							
3. Increase routine exercise							
4. Eat at designated eating place							
5. No other activity while eating							
6. Eat at same time each day							
7. Smaller plates and utensils							
8. Store food out of sight							
9. Leave table immediately							

Name: _____

Maintenance Behavior Checklist

Week Five

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. Food down between bites.							
2. Pause in middle of meal							
3. Increase routine exercise							
4. Eat at designated eating place							
5. No other activity while eating							
6. Eat at same time each day							
7. Smaller plates and utensils							
8. Store food out of sight							
9. Leave table immediately							
10. Leave food behind							
11. Dispose of leftovers							
12. Minimize contact							

NOTE: Remember to return this with your food diaries.

Name: _____

Maintenance Behavior Checklist

Week Six

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. Food down between bites							
2. Pause in middle of meal							
3. Increase routine exercise							
4. Eat at designated eating place							
5. No other activity while eating							
6. Eat at same time each day							
7. Smaller plates and utensils							
8. Store food out of sight							
9. Leave table immediately							
10. Leave food behind							
11. Dispose of leftovers							
12. Minimize contact							
13. Snack nutritiously							

NOTE: Remember to return this with your food diaries.

Name: _____

Maintenance Behavior Checklist

Week Seven

Please record in each of the following boxes the number of times each day you actually carried out your new behaviors.

	Days						
	1	2	3	4	5	6	7
1. Food down between bites							
2. Pause in middle of meal							
3. Increase routine exercise							
4. Eat at designated eating place							
5. No other activity while eating							
6. Eat at same time each day							
7. Smaller plates and utensils							
8. Store food out of sight							
9. Leave table immediately							
10. Leave food behind							
11. Dispose of leftovers							
12. Minimize contact							
13. Snack nutritiously							
14. Substitute activities for eating							

NOTE: Remember to return this with your food diaries.

Appendix L

EXERCISE DIARY Week _____ Name _____

DAY	Exercise	Time (in minutes)	When morn	aft	eve	Where	With Who	Class Exercises yes	no

Appendix M

THE EATING SURVEY

1. Have you ever eaten when you are not hungry?
2. Do you like to eat alone or with others?
3. Do you go out often with friends without stopping for something to eat?
4. What foods do you eat that are influenced by:
   (a) your religious belief or customs (for example, if you are Muslim, you do not eat pork for religious reasons);
   (b) your friends;
   (c) your family background;
   (d) your geographic location; and
   (e) special occasions, such as birthdays or graduation?
5. Do you eat when you are ... ? Please check yes or no and specify the foods where necessary.

	Yes	No	Examples of food eaten
happy			
bored			
tired			
angry			
excited			
nervous			
lonely			

6. Do you eat different foods in the summer than you do in the winter? Please specify.

7. List your three favourite foods (be specific). Compare them to the favourites of other class members.

Appendix N

Teenager Food Management Questionnaire

Directions: Write the letter (a), (b) or (c) to indicate the answer that most represents your food habits.

I. PREPARING FOOD

1. (a) Do others usually prepare your food, or (b) do you usually prepare your own food? _____

2. Do you (or others) usually prepare (a) high-calorie meals or (b) low-calorie meals? _____

3. Do you (or others) usually prepare (a) quantities of food for more than one helping per person or (b) quantities sufficient for only one helping? _____

II. SERVING FOOD

1. (a) Do others usually serve your food, or (b) do you usually serve your own food? _____

2. Do you usually serve (a) more than you need, or (b) a moderate portion? _____

3. Do you usually serve yourself (a) second portions or (b) only one portion? _____

4. Usually (a) are bowls or food containers on the table or (b) left in the kitchen? _____

III. EATING

1. Do you put (a) a large or (b) a small quantity of food on your spoon or fork? _____

2. Do you chew your food (a) rapidly or (b) slowly? _____

3. Do you usually (a) put more food into your mouth before you have finished swallowing or (b) wait until you have swallowed all the food in your mouth before you take another bite? _____

4. Do you (a) eat so fast you don't have time to enjoy the flavour of your food or (b) do you eat slowly enough to enjoy it thoroughly? _____

5. Do you (a) eat all the food in front of you or (b) stop eating when you're full, even though there's food on your plate? _____

III. CLEANING-UP

1. After eating do you (a) sit around or (b) leave the table? _____.

2. After finishing the main dish do you (a) leave the leftovers on the table or (b) clear the table before having dessert? _____.

IV. SNACKING

1. Do you snack (a) frequently (more than two times daily) or (b) occasionally (less than twice a day)? _____.

2. Do you snack (a) large quantities of food (e.g., a sandwich and a piece of cake) or (b) small quantities of food? _____

3. Do you snack mostly on (a) high-calorie foods (e.g., cookies) or (b) low-calorie foods (e.g., apples, celery and carrots)? _____.

Appendix O

SCORE SHEET FOR MY FOOD RECORD

Count 1 point for YES answers.

DID YOU Eat at least...	DAY 1	DAY 2	DAY 3
3 foods from the Milk and Milk Products Group?			
2 foods from the Meat and Alternates Group?			
3 foods from the Bread and Cereals Group?			
4 foods from the Fruits and Vegetables Group?			
Eat at least 2 vegetables?			
Eat a whole grain food?			
Eat a variety of foods in each of the 4 food groups?			
Eat a nutritious breakfast?			
Eat at regular intervals during the day?			
Eat mostly nutritious snacks?			
TOTAL SCORE (maximum 10 points)			

HOW DO YOU RATE?

10 EXCELLENT	Congratulations! "Excellent" indicates that you are choosing your foods wisely. Keep up the good work!
8 – 9 GOOD	You have a good understanding of a balanced diet. With just a few changes though, you could move up to "Excellent".
5 – 7 FAIR	There is some room for improvement in your food choices. Look at your scoring sheet again to see where changes are necessary.
4 and under RISKY	You are taking some big chances with your food choices. Start changing your eating habits today by choosing food according to the food guide recommendations.

Appendix P

Classification

Classify each of the foods below by putting a check (✓) in the correct column. Some belong in more than one food group.

FOOD	MILK & MILK PRODUCTS	MEAT & ALTERNATES	FRUITS & VEGETABLES	BREAD & CEREALS	EXTRAS
1. Chocolate Milkshake					
2. Potato					
3. Egg					
4. Cheeseburger					
5. Coffee					
6. Bran Muffin					
7. Strawberry Jam					
8. Granola					
9. Green Beans					
10. Oatmeal Cookie					
11. Chocolate Bar					
12. Rice					
13. Ice Cream					
14. Peanut Butter					
15. Potato Chips					
16. Doughnut					
17. Baked Beans					
18. Pop					
19. Macaroni and Cheese					
20. Honey					
21. Tuna Fish Sandwich					
22. Chocolate Pudding					
23. Pizza					
24. Butter					
25. Orange Jello					

Appendix Q

ENERGY QUIZ

Similar amounts of comparable foods often vary in energy content. Compare the following pairs and put an ☒ by the food in each pair which is higher in kilojoules (calories). If you think both foods in a pair are equal, put an ☒ by both.

1. ☐ 2% milk	☐ hot chocolate made with whole milk
2. ☐ grapes	☐ raisins
3. ☐ french fries	☐ baked potato
4. ☐ Danish pastry	☐ bran muffin
5. ☐ butter	☐ margarine
6. ☐ apple	☐ applesauce
7. ☐ potato chips	☐ pretzel sticks
8. ☐ chocolate marshallow cookie	☐ arrowroot cookie
9. ☐ roast beef	☐ roast chicken
10. ☐ bacon, lettuce and tomato sandwich	☐ club sandwich

Appendix R

DIETING AND NUTRITION QUIZ

T F 1. Food should not be eaten just before bedtime because the body will not burn the calories.

T F 2. Since my parents are fat it's in my genes - - I can't lose!

T F 3. It hurts to lose weight then gain it back.

T F 4. Skipping meals helps to lose weight.

T F 5. If I stay on a diet I will not lose weight every week-

T F 6. By eating less, my stomach will shrink.

T F 7. Fat people are gluttons.

T F 8. Hormones are usually useless in helping dieter's to lose weight.

T F 9. Cellulite and fat are the same thing.

T F 10. The Atkins diet, the Stillman diet and the Scarsdale diet are safe and effective.

T F 11. Fasting is the fastest way to lose weight.

T F 12. Large doses of vitamin C will prevent colds.

T F 13. Excess weight is due to excess water, so water pills are hlepful.

MYTHS ABOUT DIETING AND NUTRITION

Myth 1 Food should not be eaten just before bedtime because the body will not burn the calories.

Your body is a simple machine. It takes in energy through eating and expends energy through activity. It makes little difference when you eat, rather how much and what you eat. It is like your refrigerator, or a bank account. What it contains depends on the balance of deposits and withdrawals, not on the timing.

Myth 2 Since my parents are fat it;s in my genes -- I can;t lose.

Research on the genetics of obesity is just now being conducted on humans, so we are not certain about the degree to which obesity is inherited. Man has known for thousands of years that domestic animals can be bred to be fat, and many people feel that obesity is equally inheritable in humans. If a child has one overweight parent, there is a 40% chance the child will be overweight, and if both parents are overweight, the chances increase to 80%. A child;s weight problem may be inherited, but it is also possible that overweight parents teach their children poor eating habits, tend to have fattening foods available, and pass along food preferences that contribute to obesity. Presently, we do not know if you can blame your problems on your genes.

Myth 3 It doesn;t hurt to lose weight then gain it back.

It is possible that losing weight then regaining, especially when done repeatedly, may be worse than simply staying overweight. It is during periods of weight gain that blood pressure and serum cholesterol show a large increase. Studies with animals have shown that repeated episodes of weight loss followed by weight gain can be associated with serious heart problems. It is also disheartening to suffer through the inability to maintain weight loss.

Another important fact -- when you lose weight very rapidly, especially when dieting without exercise, you lose lean body tissue (muscle, etc.) as well as fat because the body cannot mobilize its fat stores quickly enough. When weight is regained rapidly, the body cannot produce lean tissue as quickly as it can produce fat tissue, so much of the excess energy is converted to fat. With each repetition of this pattern, a greater percentage of body weight becomes fat. The moral of this" Concentrate on maintenance of your weight loss.

Myth 4 Skipping meals helps to lose weight.

Many dieters skip breakfast, and even lunch, and then are famished by dinner time. They then consume more food than if they had eaten moderately throughout the day. They may also feel that skipped meals license an evening binge.

But most importantly, having only one meal per day has metabolic consequences regardless of caloric intake. Research has shown that one meal per day is associated with elevated cholesterol, impaired glucose tolerance, and increased fat syntheisi. Therefore, if you have only one meal per day, your body may add more fat than if you have the same number of calories in different meals. There is also evidence that obese people tend to eat fewer meals per day than their thin counterparts.

Myth 5 If I stay on a diet I will lose weight every week.

Most every dieter will reach a plateau at some point in a weight loss program. The danger lies not in the plateau, but in the mind of the dieter if he or she assumes the program is ineffective, abandons hope, and goes back to the old patterns of eating. A number of things can halt weight loss temporarily, for example water retention. But if you stay on your program you will lose weight.

Myth 6 By eating less, my stomach will shrink.

It is true that if you eat less for a long period of time, you will learn to feel full with less food. This may be particularly true with sweet foods--a food htat was once delicious may be distastefully sweet if you have had few sugared foods. The process that underlies this is not clearly understood, and it may be psychological as well as physical. Be that as it may, the stomach does not shrink.

Myth 7 Fat people are gluttons.

This is simply not true in most cases. Some overweight people eat no more than their thin friends--their bodies may not be as efficient at using the energy. Most overweight people do eat more than normal weight people, but not to such an extent to deserve being called gluttons. More notably, almost all overweight people are less active than thin people, so the energy they do consume is less likely to be used.

Myth 8 Hormones are the answer.

Hormones are an important determinant of fat metabolism, but hormone treatments are not an effective treatment for weight reduction. Many overweight people claim to have an underactive thyroid. Thyroid hormone (thryoxin) does not facilitate weight loss and has many undesirable side effects. Again, there are a few people who do need thyroid hormone, and a physician should be consulted.

Myth 9 Those ugly lumps of fat are cellulite and they need to be broken up.

Cellulite has been a useful term--for those profiting from miracle aids for anxious dieters. Many people believe that there are two types of fat--regular fat and cellulite. Cellulite is thought to be the most visible and the most difficult to burn up. The dieting industry was quick to exploit this notion by introducing dozens of methods for ridding the body of that demonic cellulite. After an extensive investigation, the American Medical Association concluded that cellulite does not exist, that there is just one type of fat, and that the devices made to burn up cellulite are of little use.

Myth 10 The best diet is a low carbohydrate diet.

Many famous diets have prescribed low level carbohydrate intake. These diets include tha Atkins diet, the Stillman diet and most recently the Scarsdale diet. When restricting carbohydrate intake, the body has too little glucose to use as fuel, so it metabolized fat for fuel. The body produces ketones which carry unused calories and are excreted in the urine. The low carbohydrate diets use this to claim that dieters can eat all they want (especially fats), and imply that weight loss is more rapid than with other diets. These diets can be very dangerous. The AMA, for example, has labeled tha Atkins diet 'unsafe and unscientific'. In addition, there is no evidence that this diet produces greater weight loss than any other diet that restricts calories to the same degree.

Myth 11 The liquid protein diet is safe and effective.

Fasting means no food. When the body is deprived of energy, it uses its own energy by burning fat and protein. Burning protein is undesirable because this results in the loss of lean body tissue. Reputable scientists have attempted to counteract the protein loss with protein supplements. Dr. George Blackburn at Harvard, Dr. Alan Howard of the University of Cambridge, and Dr. Sol Genuth of Cleveland's Mt. Sinai Hospital have used the protein sparing modified fast under strictly controlled medical conditions and have found evcouraging results. The major problem with this approach is that new eating habits are not developed, and lost weight is regained in little time.

Myth 12 Large doses of Vitamin C aids health and prevents the common cold.

In his book, Vitamin C and the Common Cold, Dr. Linus Pauling claimed to have found a means for preventing the common cold and for remedying a number of other ailments. Pauling suggested we consume a three to six month's supply of vitamin C each day. A number of controlled studies have been conducted to test the vitamin C controversy, and in each instance, those persons taking vitamin C do no better than those who don't. There are also several medical and nutritional complications involved with megadoses of this substance.

Myth 13 Excess weight is due to excess water, so water pills are helpful.

Overweight people have a smaller percentage of their body weight as water than a normal weight person. Water pills (diuretics) are only likely to dehydrate an overweight person and are not indicated for weight loss. Also you should not limit your water intake in an attempt to reduce your weight. It will have a temporary effect at best, and may be dangerous. A small number of people have water retention problems that need to be diagnosed by a physician.

Appendix S

EATING AWAY FROM HOME

CAFETERIA

More and more school boards are now taking a close look at the type of food served in the school cafeteria. Some schools are calling cafeterias "Nutrition Centres" and this title is backed up by serving items like bran muffins, yogurt, salads, quiches, crisp raw vegetables, and fresh fruit.

You can stick to your diet if you just plan ahead - and don't grab the first item you see (unfortunately, usually gooey desserts). Locate the salads, meats, and vegetables.. Carry your tray past and select a vegetable soup, salad and an apple. This meal will fight off hunger pangs and provide the nutrients you need.

VENDING MACHINES

As with the food served in the school cafeteria, more school boards are putting pressure on to remove the "caution" foods from vending machines in schools. Perhaps you have noticed the change in items sold already. There is a healthy trend now to fruit juices and milk rather than pop, high-protein snacks rather than chips, fresh fruit rather than lemon meringue pie. And that is good news for dieting teens. If you need a snack, check the "in" list of snacks (remember the food groups) and an apple or a muffin, milk or juice. Head over to the water fountain if only sugar drinks are available.

AT THE MOVIES

While there are only forty calories in one cup of plain popcorn, very few teens (or adults) can stop at just one cup. And very few refrain from adding salt and lots of butter (which adds calories). Nuts and seeds are more nutritious than popcorn - but high in calories. While dieting, take an apple to the show. It is just as noisy as the popcorn, has more nutrients, and will be farm more satisfying.

WATCHING TV

Don't snack when you are watching television, either. Make a point, when dieting, of always eating in the same place. And that should not be in front of the television. If you are bored with the TV program, knit, crochet, do some rug-hooking or a jigsaw puzzle, or fill in a cross-word puzzle. Or turn it off, and read an engrossing book.

AT A PARTY

Don't stop going to parties just because you are "on a diet". But keep your resolution not to over-indulge. Disco dancing is going to burn off some calories but that is not the purpose. Still stick to your basic food plan.

Concentrate on talking to your friends and bring along your soda or mineral water. (It's the "in" refreshment these days, anyway). If you are giving a party, put out lots of raw vegetables like mushrooms, carrots, celery, green pepper, green beans, cherry tomatoes with a plain yogurt dip. It will be a popular snack your friends will enjoy. If you are invited to a dinner party, request small portions, avoid rich sauces and gravies. You won't be criticized - just applauded.

AT A RESTAURANT

If there are french fries "with" the dinner, ask for a substitute salad)or a plain baked potato). Ask to have a salad without dressing - just vinegar or lemon will perk it up. Ask for toast without butter, and vegetables and meats without sauces. It's your dollar and it's better spent on healthier, low-calorie foods. So let's choose wisely and well.

FAST-FOOD OUTLETS

Most fast-food outlets now offer salad bars. Select a salad and avoid the fries. Choose milk (preferably skim) or juice over the milkshakes. Avoid deep-fried foods completely, of, if you can't do that, take of the batter from fish or chicken. Also avoid heavily fatted fruit pies.

A fast-food meal occasionally is fine - but watch what you select. We have listed the calorie content of some of your favorite fast-food choices below. A cheeseburger, salad, juice or milk is a good combination. Stick an apple in your back pocket for dessert and you will have a fairly well-balanced, not too high-calorie meal.

Fudge (1 piece)	115	Chocolate chip cookie (1)	50
Potato Chips (10)	115	Doughnut (cake type)	25
Chocolate marshmallow cookie	75	Danish (1)	275
Popcorn (250 ml - no butter)	40	Beer (375 ml)	150
(plus 25 ml butter)	100	Apple pie (1 piece)	350
Strawberry yogurt (175 ml)	170	Milkshake	350
Bic Mac TM	541	Chocolate malt (large)	840
Hamburger	260	Banana Split	540
Peanut butter	95	Chocolate Sundae (large)	400
Pizza (1 slice)	150	Popsicle (1)	70
Hot dog	270	Plain ice-cream cone (1)	19
		Sugar cone (1)	49
		Chopped peanuts (125 mL)	210

Appendix T

Hints for Preparing Meals

There are several things you can do to make your meals more interesting, even if the foods have very few calories. Boredom and tasteless foods are common complaints among dieters. Here are some tips for spicing up the foods that you prepare.

1. Have many nutritious foods available. Most fad diets concentrate on one food. When you tire of that food, you must go off the diet, then you are back where you started.

2. Make your food more attractive. If you have the feeling that eating must be unpleasant when you are trying to lose weight, then you are setting yourself up for boring meals. Try to make your foods as colorful and well prepared as possible. The popular magazines abound with recipies for low-calorie foods. Many are delicious and quite low in calories. Make sure you know the number of calories in these foods, then try some of them.

3. Try to avoid cooking foods in high calorie oils. You can save yourself some calories by boiling or baking foods. You will notice in your calorie book that fried chicken has more calories than baked or boiled chicken.

4. Avoid foods that are prepared in oils or have extra sugar. Tuna fish comes packed in water or oil. The water is better. Canned fruits can be in heavy syrup, light syrup, or water. The heavy syrup is high in calories, the light syrup is better, and water is the best. Watch out for those cereals. Most of the highly advertised cereals have a lot of sugar. An average sugar-coated cereal is 50% sugar. Try the unsweetened cereals.

5. Use different fruits for dessert. Many calories are consumed at dessert time. Some desserts supply many calories but few nutrients. Try fresh fruit with a little brown sugar or some artificial sweetener if needed. Also, remember that ice milk has fewer calories than ice cream and supplies some of the nutritional requirements for dairy products.

6. Keep a supply of vegetables for snacks. Raw carrots, cauliflower celery and other vegetables are low in calories, and may take care of your need to snack.

7. Start off your meal with a low calorie liquid or some soup. As I mentioned earlier, your stomach takes some time to signal your brain that you have had enough, so if you begin with a low calorie food, you may feel more full by the time the high calorie foods come in.

8. Try different types of fish. Canada is enamored with meat, while fish is a good source of protein. There are also many creative ways to prepare fish.

9. Using seasoning to make foods more tasty. Your spice rack can be a real asset when you are trying to have interesting meals. Sift through some cookbooks to see some of the many ways spices can be used. Then experiment.

Appendix U

Hints for Eating Away From Home

1. Keep the bread basket at the other side of the table. This way everybody will notice your reaching arm as you move to secure something from the basket. If you are dining with a friend or parent they can help by being in charge of the basket.

2. Order an a la carte meal if possible. It is true that you may save a little money if you order an entire meal, and you may tell yourself that you will not eat the extras (like french fries), but we all know what really happens. The savings in calories may be worth the slight expense.

3. Have someone else order for you. If you are going out with your family or a friend, tell them before you arrive what you intend to eat, then let them order. If you do not know what will be served, then tell them after you have viewed the menu, then let them order for you. This will make you more accountable and will make you think a little more about what you will eat.

4. Order salads with no dressing or with dressing on the side. You may not want as much dressing as some restaurants serve on salads, but it it is there, you will probably eat it. If the dressing is on the side, you can measure how much you use.

5. Carry your own diet salad dressing. Order a salad without dressing, then add you own low calorie variety.

6. Order club soda or tomato juice or a diet drink when others are having Coke and milkshakes. This will keep you busy while the others are drinking and can be a big help with the calories.

7. For your parents - if you want something with alcohol, whit wine is lowest in calories.

8. Use celery, carrots, and so forth as substitutes for high calories appetizers at dinners and parties. You will be eating something but will be adding few calories to your budget. Watch out for those dips.

9. Desert is not necessarily a bad word, but be careful when you order. You may want to have fresh fruit or gelatin in place of high calorie foods.

10. Even in a fast food restaurant you can watch your calories. If possible, you can avoid the fried foods, get diet drinks or iced tea, and have a salad if available.

You can probably think of ways to avoid the high calorie temptations when you are eating away from home. Keep these tricks up your sleeve so you have several different ways of dealing with these situations when they arise.

Appendix V

Energy Values for Some Common Fast Foods

	Kilojoules	Calories
ARTHUR TREACHER'S		
Chips (per serving)	1150	274
Coleslaw	510	122
Fish (2 pieces)	1440	344
BASKIN ROBBINS		
Ice Cream, all flavours (1 scoop)	560-620	133-148
Sherbets and Ices (1 scoop)	580	139
BURGER KING		
Cheeseburger	1280	305
French Fries	920	220
Hamburger	960	230
Chocolate Shake	1530	365
Whopper	2640	630
COLONEL SANDER'S KENTUCKY FRIED CHICKEN		
(Fried Chicken, Mashed Potatoes, Coleslaw, Rolls)		
2-Piece Dinner – Original	2490	595
Crispy	2780	665
DAIRY QUEEN/BRAZIER		
"Brazier"	1050	250
"Brazier" Cheeseburger	1300	310
"Brazier" Chili Dog	1380	330
"Brazier" Dog	1130	270
"Brazier" French Fries	840	200
"Brazier" Onion Rings	1260	300
Big "Brazier"	2130	510
Super "Brazier"/The "Half Pounder"	3560	850
Ice Cream		
Buster Bar	1630	390
Dairy Queen Cone (medium)	960	230
Dairy Queen Dipped Cone (medium)	1300	310
Dairy Queen Malt (medium)	2430	580
Dairy Queen Sundae (medium)	1250	300
Dilly Bar	1000	240
Hot Fudge "Brownie Delight" Sundae	2430	580
DUNKIN DONUTS		
Donuts (including rings, sticks, crullers)	1000	240
Donuts, Yeast-raised	670	160
Fancies (Includes coffee rolls, Danish, etc.)	900	215
MCDONALD'S		
Apple Pie	1110	265
Big Mac	2330	557
Cheeseburger	1290	309
Egg McMuffin	1310	312
Fillet-O-Fish	1700	406
French Fries	900	215
Hamburger	1040	249
1/4 Pounder	1730	414
1/4 Pounder with Cheese	2180	521
Chocolate Shake	1330	317
PIZZA HUT		
1/2 of 10-Inch Pizza (Thin Crust)		
Beef	2040	488
Cheese	1820	436
Pepperoni	1920	459
Supreme	1990	475

Adapted from The Fast Food Calorie Calculator by Henry A. Jordan, Leonard S. Levitz and Gordon M. Kimbrell, Eating is Okay. Rawson Associates Publisher, Inc., 1976.

Appendix W

*The Complete Scarsdale Medical Diet

Recommended by Dr. H. Tarnower and S. S. Baker in their book, "The Complete Scarsdale Medical Diet Plus Dr. Tarnower's Lifetime Keep-Slim Program"

The Scarsdale Medical Diet "is a basic weight loss plan for adults who have no special dietary needs or problems."

PERMITTED FOODS ON THIS DIET

1. Cheese – low fat cottage or pot cheese and various low fat cheese slices
2. Meat – lean: beef, ham, lamb, chicken, turkey, etc. with all visible fat and/or skin removed before eating
3. Fish or Shellfish – any kind
4. Eggs – any style (no fat used in cooking)
5. Vegetables
6. Fruit
7. Bread – protein or whole wheat
8. Nuts – walnuts or pecans
9. Soups – low calorie such as consomme, onion soup, etc.
10. Beverages – consume coffee and tea with no whitener or sugar, club soda, diet soda, and water, as desired.
11. Condiments – ketchup, cocktail sauce, mustard, etc. in moderation

PROHIBITED FOODS ON THIS DIET

1. Milk
2. Farmer cheese
3. Alcoholic beverages
4. Meats such as sausage, bologna and salami
5. Corn, peas, potatoes, lentils and any beans except green or waxed
6. Pasta and rice
7. No added fat such as butter, margarine or oil
8. No concentrated sweets such as honey, sugar, jams or syrups
9. Peanut butter

IMPORTANT GUIDELINES FOR THIS DIET

1. A physician's approval and continuing supervision is recommended.
2. It is not necessary to eat everything listed but don't substitute or add. Indicated food combinations should be observed.
3. You can eat as much as you want of the allowed foods as long as you avoid overloading your stomach.
4. Weigh yourself every morning on rising and record your weight for at least two weeks
5. Physical activity is encouraged, and if at all possible, the dieter should walk briskly at least two miles a day.
6. The Scarsdale Medical Diet is limited to 14 days at a time after which the dieter should switch to the Keep-Trim Program which allows a greater variety of foods. If at the end of two weeks on the Keep-Trim Program further weight loss is needed, one should return to the Scarsdale Medical Diet for two more weeks.

CLAIMS

1. Dieters may lose an average of ½ kg** (1 lb) per day; many report losses of 9 kg (20 lb) or more in two weeks.
2. This diet averages 4,180 kJ (1,000 Cal) or less per day. Of these kilojoules approximately 43 per cent come from protein, 22.5 per cent from fat and 34.5 per cent from carbohydrate.
3. The Scarsdale Medical Diet includes a built-in behaviour modification approach.

**In order to be consistent with the overall program material, terms used in "The Complete Scarsdale Medical Diet" will be converted to metric where applicable.

*The OMMB does not specifically recommend or endorse this diet. It is included here only for purposes of nutritional evaluation, comparison and fair comment

*The Pritikin Diet

Recommended by Nathan Pritikin and Patrick M. McGrady in their book, "The Pritikin Program for Diet and Exercise".

PERMITTED FOODS ON THIS DIET

1. Milk and Milk Products – You are allowed 250 mL** (8 oz) of skim milk per day or the equivalent in buttermilk or yogurt and 60 grams (g) (2 oz) of skim milk cheese per day.
2. Meat, Poultry, Fish, Shellfish – Choose lean types and remove all visible fat and/or skin before cooking. A minimum of 180 g (6 oz) and a maximum of 720 g (24 oz) of low fat, low cholesterol animal protein should be eaten per week.
3. Eggs – egg white only
4. Beans, Peas (Dried) – Eat beans or peas one to three times per week. Thirty grams (1 oz) of soybeans must be substituted for 30 g (1 oz) poultry, fish or meat.
5. Nuts, Seeds – chestnuts only
6. Vegetables – All are allowed except avocados and olives. Eat two or more servings of raw vegetable salad and two or more servings of raw or cooked green or yellow vegetables daily. Potatoes may be eaten every day.
7. Fruits – All fresh and prepared fruits and juices without added sugar are allowed. Eat a serving of citrus fruit and up to three additional servings of fresh fruit daily.
8. Grains – All are allowed except those with added fat, sugar or egg yolk. Eat two or more kinds of whole grains daily.
9. Alcohol – dry white wine in moderation for cooking

**In order to be consistent with the overall program materials terms used in "The Pritikin Program for Diet and Exercise" will be converted to metric where applicable.

FOODS TO AVOID

1. All fats and oils
2. All extracted sugars including syrups, molasses and honey
3. Egg yolks
4. Whole and two per cent milk or any products from which they are made
5. Non-dairy substitutes
6. Organ meats
7. Smoked, charbroiled or barbequed foods

IMPORTANT GUIDELINES FOR THIS DIET

1. Eat three full meals daily. Don't go hungry between meals; snacks are encouraged. Snacks can include fruits, vegetables or whole grain products (without added fats or sugars).
2. Flavour with herbs and spices instead of salt. Salt intake should be no greater than 3 to 4 g per day.
3. If you need to lose weight, increase vegetables and decrease grains. Do the opposite if you need to gain weight.
4. Those taking any prescription drugs require monitoring by a physician.
5. The Pritikin Program stresses physical activity.

CLAIMS

1. "On the Pritikin Program you will feel years younger – and look it too. Your new eating patterns will enhance the acuity of your senses, give you boundless new energy, take away that tired feeling, and may even reduce your daily sleep requirement. Some symptoms of aging even disappear in the time that it normally takes to shake a cold."
2. Patients at the Longevity Center in California lose an average of 6 kg (13.2 lb) in their four week stay.
3. The Pritikin Diet maintains your ideal weight without any restrictions on food quantity.
4. Of the total kilojoules in the Pritikin Diet about 5 to 10 per cent come from fat, 10 to 15 per cent from protein and 80 per cent from carbohydrate.

*The OMMB does not specifically recommend or endorse this diet. It is included here only for purposes of nutritional evaluation, comparison and fair comment.

THREE PHASE APPROACH TO WEIGHT REDUCTION

Recommended by R. Stuart and B. Davis in their book

Slim Chance in a Fat World – Condensed Edition

EHAVIOUR CHANGE

The authors believe that eating behaviour is the result of environmental influences. (What, when, where and how much you eat, with whom and where you live.) this phase of the program, you determine the environmental influences contributing to your overeating and attempt to change them. Suggestions to help you change your behaviour are included.

xample:

The Problem Most of us snack while watching television whether we are hungry or not.

Solution Restrict eating to one place in one room only (such as the kitchen table) and do not combine eating with any other activity. (Such as watching ision).

NUTRITION AND DIET

You are advised to eat 2100 kJ** (500 Cal) less than your total energy need per day. However, to obtain the necessary nutrients, you are not to eat less than 5040 kJ (1200 Cal) per day if you are a woman or 6300 kJ (1500 Cal) per day if you are a man.

To obtain the right balance of nutrients you are to eat a combination of foods from the four food groups including cereals, meats, milk products and fruits and vegetables. Also, choose a variety of foods within each food group because certain foods in a group may be particularly rich in one or more specific nutrients.

PROHIBITED FOODS No foods are absolutely prohibited. However, you are advised to "use sparingly" foods high in energy, fat, and/or sugar such as butter, cream, salad dressings, candy, jams, syrups, honey, desserts, liquor, beer and wine.

EXERCISE

You need to exercise regularly not only to use up kilojoules (calories) but to promote health and well being. Dynamic or vigorous exercise including bowling, golfing, jogging, cycling, and swimming are recommended.

Begin exercising gently and increase gradually. To stick with this phase of the program it is suggested that you

1) choose exercises that you enjoy
2) exercise with a partner to make it more fun
3) choose exercises which suit your lifestyle
4) build your exercise into the natural course of the day. (Example. use stairs instead of elevator)

*The OMMB does not specifically recommend or endorse this diet. It is included here only for purposes of nutritional evaluation, comparison and fair comment.

** In order to be consistent with the overall program material, terms used in "Slim Chance in a Fat World" will be converted to metric where applicable.

The reader should recognize that this is a one page summary of a book and by its very nature, is no more than a simplification or an overview of the diet plan. However the OMMB considers it to be a fair representation of the main features of the diet. For a more detailed examination of the diet, an individual should refer to the original book.

IMPORTANT GUIDELINES

1. You must realize that weight loss is long, hard work and that the final rewards may not come until months or years after you start. You will have to be active, but not necessarily hungry if you are to succeed in losing weight.
2. Learn to control the environmental influences that contribute to over-eating before you begin dieting and exercising.
3. Eat three regular, planned meals every day. Keep safe snack foods such as fresh vegetables, & clear soups, readily available.
4. Try to lose only .4-.7 kg (1-1 1/2 lb) per week.
5. Keep an eye on how much you eat. Weigh and measure your food until you learn to guess portion size accurately.
6. Pay attention to food preparation. Use as little extra fat and thickening agents as possible. Cut away visible fat from meats before cooking. Use milk products low in kilojoules (calories) in cooking.
7. If there is any doubt at all about your health, check with your doctor before beginning this program.

CLAIMS

1. If you follow the steps in this program, you must lose weight in the long run.
2. The pattern of losing weight then regaining it is bad for your health. People who constantly gain and lose weight are worse off because of the added risk of heart and blood disease than those who gain and just maintain their weight.

The Ontario Milk Marketing Board
October 1980

3. Magic drugs, fad diets, super surgery and wonder workouts have promised to cut the work and the time needed for effective weight loss, but none of these promises has ever come true for any large number of people.
4. Moderate exercise does not increase hunger. In fact, active people tend to eat less. The body has a signal system which tells you when to start and when to stop eating but it only seems to work in the active person. In addition, exercise will make you feel less bored or mentally and physically tired and it will help you rid yourself of tension and anger.
5. Moderate exercise over a long period of time will result in substantial weight loss.

Example: One hour of fast walking per day will result in a 11.3 kg (25 lb) weight loss in a year.

SAMPLE MENU FOR THIS TYPE OF DIET – 5040 kilojoules (1200 calories) for an adult

Note: coffee and tea may be taken clear or with milk and artificial sweetener.

Breakfast:	125 mL (4 oz) Unsweetened orange juice Poached egg on toast with 5 mL (1 tsp.) butter Coffee - tea
Lunch:	250 mL (1 cup) skim milk Chicken Sandwich 60 g (2 oz) chicken, 2 slices bread, 5 mL (1 tsp.) mayonnaise or butter 1/4 cantaloupe Tea - coffee
Dinner:	250 mL (1 cup) skim milk Fresh spinach, mushroom and tomato salad 15 mL (1 tbsp.) oil and vinegar dressing 90 g (3 oz) Baked Fillet of Sole 125 mL (1/2 cup) Parsley Rice Carrots 250 mL (1 cup) Fresh Strawberries Tea - coffee

*GRAPEFRUIT DIET or sometimes called "THE MAYO DIET"

This diet is not published in book form, but thousands of copies have been reproduced and passed among dieters for years.

PERMITTED FOODS ON THIS DIET

In order to lose weight on this diet you must eat according to the following plan, eating only the food combinations and amounts recommended. Do not omit anything

RECOMMENDED MEAL PATTERN:

Breakfast: 1/2 grapefruit or unsweetened grapefruit juice, eggs, any style and amount but no less than 2, bacon, any amount but no less than 2 slices, coffee or tea, no sugar.

Lunch: 1/2 grapefruit
meat, any style, any amount
salad, any amount
salad dressing, any kind without sugar
coffee or tea, no sugar.

Dinner: 1/2 grapefruit
meat, any style, any amount with gravy made without flour or fish, any style any amount
any green, yellow or red vegetable in any amount with butter if desired
salad, any amount
salad dressing, any kind without sugar
coffee or tea, no sugar.

Evening Snack: tomato juice or skim milk

PROHIBITED FOODS ON THIS DIET

Do not eat any food that is not mentioned above.

IMPORTANT GUIDELINES FOR THIS DIET

1. At every meal (3 per day) you must eat 1/2 grapefruit or unsweetened grapefruit juice.
2. At mealtime eat as much as you can of the foods recommended, until you are full and cannot eat anymore. Do not eliminate any of the recommended foods.
3. Eating between meals is not permitted. If you are hungry just eat more at mealtimes. An evening snack of skim milk or tomato juice is allowed.
4. Cut down on the amount of coffee you drink. Try to limit coffee to no more than one cup at mealtimes.
5. You can eat the same foods as your family and friends except for: breads, cereal and pastas, all fruits other than grapefruit, white vegetables, sugars, desserts and milk products (except a glass of skim milk allowed as an evening snack).

CLAIMS

1. You should lose 4.5 kg** (10 lb) in ten days. There will be no weight loss in the first four days but your weight will suddenly drop 2.2 kg (5 lb) on the fifth day and thereafter you will lose .7 kg (1 1/2 lb) every two days until you reach your desired weight.
2. You will never be hungry on this diet. It allows you to eat unlimited amounts of formerly "forbidden foods" such as big juicy steaks, fried chicken, rich gravies, lobster swimming in butter, bacon, sausages and scrambled eggs.

(Over)

* The OMMB does not specifically recommend or endorse this diet. It is included here only for purposes of nutritional evaluation, comparison and fair comment
** In order to be consistent with the overall program, terms used in the "Grapefruit Diet" will be converted to metric where applicable

Appendix X

GUIDELINES FOR EVALUATING DIETS

A good diet will score a "yes" for each question below

Does the diet...	Yes	No
1. include a variety of foods you normally eat and enjoy?	( )	( )
2. recommend increasing physical activity?	( )	( )
3. include a variety of foods from all four food groups (no one food or food group is promoted)?	( )	( )
4. recommend choosing foods each day at least the 3.2.3.4. way for teenagers?	( )	( )
or the 2.2.3.4. way for adults?	( )	( )
5. rely on food for essential nutrients (not on vitamin-mineral pills or meal replacements)?	( )	( )
6. provide for a gradual weight loss of ½ to 1 kilogram (1 to 2 pounds) a week?	( )	( )
7. allow nutritious snacks?	( )	( )
8. maintain and promote good health?	( )	( )
9. recommend that a doctor be consulted?	( )	( )
10. emphasize portion control (does not allow unlimited servings)?	( )	( )

Appendix Y

Food Management Questionnaire

Directions: Write the letter (a), (b) or (c) to indicate the answer that most represents your food habits.

I. BUYING FOOD

1. Do you usually go to the grocery store (a) without a written food list, (b) with some ideas in your head about what to buy (but no list), (c) with a written food list? _____.

2. Do you usually buy (a) whatever meets your fancy in the aisles and on the shelves, (b) more than you originally had on your list, (c) from your food list only? _____.

3. Do you usually shop (a) when you are hungry, (b) whenever you need to, (c) when you are not hungry? _____.

4. Do you usually purchase (a) more than you need of most foods, (b) excess quantities of some foods, (c) only moderate quantities of food? _____.

5. Do you buy mostly (a) high-calorie foods, (b) a combination of high-and low-calorie foods, or (c) low-calorie nutritious foods? _____.

II. STORING FOOD

1. Do you usually store food in (a) transparent accessible containers in the refrigerator, (b) whatever is handy, or (c) in opaque (non-see-through) difficult-to-reach containers in the refrigerator? _____.

2. Do you usually store food in (a) transparent, easy-to-reach containers in the cupboards, (b) whatever is handy, or (c) in opaque difficult-to-reach containers in the cupboards? _____.

3. Do you (a) usually have food available on the kitchen countertop, in the living room, or in the TV room, (b) sometimes have food available on the kitchen countertop, in the living room, or in the TV room, or (c) almost never leave food on the kitchen countertop, in the living room, or in the TV room? _____.

III. PREPARING FOOD

1. (a) Do you usually prepare your child's food, or (b) does he/she usually prepare his/her own? _____.

2. Which are usually prepared (a) high-calorie meals or (b) low-calorie meals? _____.

3. Do you (or your child) usually prepare (a) quantities of food for more than one helping per person or (b) quantities sufficient for only one helping? _____.

IV. SERVING FOOD

1.(a) Do you usually serve your child's food, or (b) does he/she usually serve him/herself? _____.

2. How much is usually served (a) more than is needed, or (b) a moderate portion? _____.

3. Do you usually serve (a) second portions or (b) only one portion? _____.

4. Are (a) food containers usually on the table or (b) left in the kitchen? _____.

Appendix Z

Name: _____

Date: _____

Maintenance Behavior Checklist

1. Food down between bites														
2. Pause in middle of meal														
3. Increase routine exercise														
4. Eat at designated eating place														
5. No other activity while eating														
6. Eat at same time each day														
7. Smaller plates and utensils														
8. Store food out of sight														
9. Leave table immediately														
10. Leave food behind														
11. Dispose of leftovers														
12. Minimize contact														
13. Snack nutritiously														
14. Substitute activities for eating														

Appendix AA

PROGRAM EVALUATION

1. If you had to decide all over again, would you take this course? _____

   Why or why not? _____

   _____

2. How has this course helped you to control your weight? _____

   _____

   _____

3. What parts of the course did you find most helpful?

   _____ Guest speakers
   _____ Weekly lectures
   _____ Discussion of lecture material
   _____ Homework
   _____ Individual discussion about homework
   _____ Meeting the other kids
   _____ Other (specify _____

4. What parts of the course did you like the most?

   _____ Guest speakers
   _____ Weekly lectures
   _____ Discussion of lecture material
   _____ Homework
   _____ Individual discussion about homework
   _____ Meeting the other kids
   _____ Other (specify) _____

5. What parts of the course did you not like? _____

   _____

6. Do you think your homework results were a true picture of what you really ate all week and what you did? _____

7. Did you really try out the techniques suggested in the course?

   _____

8. What other topics would you have liked to discuss? _____

   _____

9. Which, of all the techniques, worked best for you? _____

   _____

10. Were there any weight-related topics or problems you would have liked to discuss, but weren't included or discussed enough? What would you have liked to hear more about? _____

    _____

Appendix BB

MEMORIAL UNIVERSITY OF NEWFOUNDLAND
St. John's, Newfoundland, Canada A1B 3X9

Department of Psychology

Telex: 016-4101
Tel.: (709) 737-8496

December 22, 1983

Dear Teenagers:

As I've mentioned on the telephone - you have been selected to be part of the group that is to be followed up.

Here are the dates of the telephone calls. All calls will be between 3:30 and 6:00 on Wednesday. Please remember to weigh yourself on your home scales the Wednesday morning that I will be calling.

Dates:

Month #1 Dec. 14 - Jan. 11/84
#1 December 21/83
#2 December 28/83
#3 January 4, 1984
#4 January 11, 1984

Month #2 January 12 - Feb 8/84
#5 January 18/84
#6 January 25/84
#7 February 1, 1984
#8 February 8, 1984

Month #3 February 9 - March 7/84
#9 February 22, 1984
#10 March 7, 1984

Month #4 March 8 - April 4/84
#11 March 21/84
#12 April 4/84

Follow-up #1

Month #5 April 4 - May 2/84
#13 May 2/84

Month #6 May 3 - May 30/84
#14 May 30, 1984

Follow-up #2

For those of you who will be out of town on some of these days during Christmas, I will call you as soon as possible.

Have a Merry Christmas and I hope the New Year brings you happiness.

Mary Walsh

/cdb

Appendix CC

Name: _____

Date: _____

Month No: Followup No: _____

Maintenance Behavior Checklists

Maintenance Group

	CONTACT													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Food down between bites														
2. Pause in middle of meal														
3. Increase routine exercise														
4. Eat at designated eating place														
5. No other activity while eating														
6. Eat at same time each day														
7. Smaller plates and utensils														
8. Store food out of sight														
9. Leave table immediately														
10. Leave food behind														
11. Dispose of leftovers														
12. Minimize contact														
13. Snack nutritiously														
14. Substitute activities for eating														

Appendix DD

Parent Name: _____

Date: _____

Parent Behavior Checklists

	Contacts					
	1	2	3	4	5	6
1. Eat at same place						
2. Eat same time each day						
3. Leave table immediately						
4. Do not offer food to teenager						
5. Remove serving dishes						
6. Store food out of sight						
7. Don't ask teenager to be food dispenser						
8. Clear remaining foods into garbage						
9. Set some foods aside						
10. Snack Nutritiously						

Appendix EE

Name: _____

Group: _____

Followup #: _____

Date: _____

Followup

Maintenance Behavior Checklist

Could you please indicate to what degree you used each of these behaviors by using the following rating scale:

0 - never
1 - sometimes
2 - most of the time
3 - always

1. Food down between bites _____
2. Pause in middle of meal _____
3. Increase routine exercise _____
4. Eat at designated place _____
5. No other activity while eating _____
6. Eat at same time each day _____
7. Smaller plates and utensils _____
8. Store food out of sight _____
9. Leave table immediately _____
10. Leave some food behind _____
11. Dispose of leftovers _____
12. Minimize contact with food _____
13. Snack nutritiously _____
14. Substitute other activities for eating _____