

THE EFFECT OF A VERBAL FRAMING VARIABLE  
IN A WEIGHT CONTROL PROGRAM

by

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## INTRODUCTION

For medical and social reasons, many individuals seek to rid themselves of excess fat. In doing so they run a high risk of failure and disappointment. Dieting, perhaps the most popular method of weight reduction, often fails to effect significant, permanent weight changes (Brownell, 1982; Foreyt, Mitchell, Garber, Gee, Scott & Gotto, 1982; Foreyt & Kondo, 1984; Schachter & Rodin, 1974; Stuart, 1980).

Effective for a few weeks, dieting eventually tends to produce reduced caloric needs which minimizes weight loss and may produce a "rebound" effect upon resumption of higher caloric eating. Hapless obese individuals find themselves locked into endless diets merely to keep from becoming even more obese.

Neither psychological nor medical intervention have proven particularly effective in the correction and control of obesity. Research findings to date indicate that improper diet and inadequate physical activity interact with other factors to produce excess fatty deposits (Brownell & Stunkard, 1980; Thompson, Jarvie, Lahey & Cureton 1980; Vasselli, Cleary, & Van Itallie, 1983). As a consequence of these findings, psychologists and many medical doctors have abandoned the seemingly futile search for a single-cause etiology of obesity. Rather, obesity appears to be the logical and inevitable consequence of

biological and behavioral factors which interact in the milieu of our society.

### The Condition of Obesity

Obesity, "an excess of body fat frequently resulting in a significant impairment of health" (Burton, Foster, Hirsch, & Van Itallie, 1985), may be inferred using indirect estimates based on hydrostatic weighing, or correlates of fatness such as height-weight tables (Simopoulos, 1985; Van Itallie, 1979). Obesity is characterized by an excess of fat which is stored in fat cells. The number of fat cells available for fat storage tends to be determined in infancy. Subsequent obesity, then, may be the result of a large number of fat cells storing relatively small amounts of fat (hyperplastic obesity) or a relatively small number of fat cells storing large amounts of fat (hypertrophic obesity) (Sjostrom, 1980).

Actuarial height-weight tables. Individuals are commonly considered "overweight," if they weigh more than a specified percentage, for example, 20% over the "ideal weight" for a given height, as determined by actuarial tables (Vasselli, Cleary & Van Itallie, 1983). These actuarial definitions date back to actuarial tables which began to appear in 1913. The most widely used, Metropolitan Life Insurance tables, are based on weights, for given heights, correlated with lowest mortality.

Actuarial tables, however may be faulted for various reasons. First, desirable weights are based on a sample of Americans who, as a group, tend to be overfat and hyperlipidemic. "Ideal" weights are based solely on mortality, and no attention is paid to disease (Simopoulos, 1985). Furthermore, relationships between relative weight and mortality may be confounded by illness or cigarette smoking (Garrison, Feinleib, Castelli & McMamara, 1983).

"Desirable," and "Ideal" are clearly arbitrary terms and may be confused with other arbitrary "health indices" such as "average." For example, height-weight tables cited by the U.S. Department of Health, Education, and Welfare, Public Health Service (1966), indicate an "average weight for a 52 year old man, 6'2" tall would be 194 pounds. Height-weight tables published in 1980 by the Society of Actuaries and Association of Life Insurance Medical Directors of America provide a weight range of 155 to 197 pounds, depending on whether the individual is small, medium, or large "framed." Unfortunately, no criteria are given for determinations of frame size.

A final problem with actuarially determined weights is that they fail to allow for the occasional individual whose "overweight" condition is attributable to lean body mass rather than excess fat. Muscle increases brought about by exercise during weight control programs can cause lean body mass weight increases as fat weight is being lost.

Extremely muscular individuals may be considered obese on bodyweight figures alone (personal observation).

Ultimately, weight is a measure that must be used cautiously. Fat control, not weight control, is the problem faced by "overweight" people. Degree of "overfatness" would appear to be a measure superior to traditional height-weight tables. More than 30% body fat in women and more than 20 to 25% in men is considered obese by some authorities (Vasselli, Cleary, & Van Itallie, 1983). Regardless of measurement techniques or obesity criteria, the concept of "over-fat" must replace that of "over-weight."

Measures of fatness. One method of identifying fat levels relative to weight involves target weights based on body fat. These may be computed by determining percentage body fat and then calculating weights based on "ideal" fat levels. One study suggests 14% for men and 24% for women as appropriately "healthy" levels of fat (Rogers, Mahoney & Mahoney, 1980). Cooper (1982), whose recommendations are based on maintaining men's body fat between 15% and 19% total body weight, considers that 168 to 185 pounds is an ideal weight for a 6'2" tall, 52 year old man, the higher weight applicable to individuals who meet his specific criteria for being "large boned." Clearly height-weight tables, such as Cooper's, with specific guidelines for determining body frame, and based on actual fat

percentages, provide a useful tool for individuals attempting fat reduction.

Percentage of fatty tissue, however, is difficult to determine without special facilities and equipment. Since most social science investigators are unable to conduct procedures such as underwater weighing, they resort to fat estimates derived from anthropometry, for example skinfold measures or body-part girths; or indices derived from height-weight tables, for example, Ponderal Index, Body Mass Index, or Pirquet's Index. Each method has shortcomings, and choice tends to be determined by logistics and treatment sample (Rogers, Mahoney & Mahoney, 1980; Simopoulos, 1985). Although skinfold measures are recommended by various authorities (Brownell, 1982; Franzini & Grimes, 1981; Seltzer & Mayer, 1965, 1966), they are subject to prediction errors of as much as 200% (Katch & Katch, 1980), brought about by age, sex, degree of adiposity, fat distribution, technique, and inter- and intra-examiner error (Scherf, Franklin, Lucas, Stevenson & Rubenfire, 1986). In spite of these shortcomings skinfold measures, used with prudence, may be the measure of choice in some studies (e.g. Abraham & Johnson, 1980).

#### Health Consequences of Obesity

Many studies have shown associations between obesity and serious health problems. Hypertension, hyperlipidemia, diabetes mellitus, carbohydrate intolerance, pulmonary and

renal problems, osteoarthritis and complications during pregnancy are all highly correlated with obesity (Van Itallie, 1979).

Atherosclerosis. Cardiovascular disease is the most conspicuous health problem associated with obesity. Brownell (1982), however, points out that the relationship between obesity and cardiovascular disease is not always a clear one. The problem lies in whether or not the risk of cardiovascular disease in obesity exists as an independent factor or only because of factors associated with obesity. Castelli (1984) points out that most high risk individuals have one or more risk factors in addition to obesity. These factors include hypertension, diabetes mellitus, smoking, high stress, and family history. Thus, although most studies show that obesity is dangerous, studies of the relationship between obesity and coronary disease tend to be equivocal.

Reduction of body-fat levels tend to correlate with reduction of coronary and other health risk factors. Stunkard (1975), for example, reviews a study (Olefsky, Reaven, & Farquhar, 1974) in which the subjects, who lost an average of 21 pounds, showed dramatic health related changes including improvement in glucose tolerance, decrease in insulin response to glucose load, a 40% decrease in production of very low density lipoproteins, and drops in plasma triglycerides and plasma cholesterol of

44% and 21% respectively. Lipids particularly, appear to be important in the etiology of cardiovascular disease. Castelli (1984) concludes that lipids are the most fundamental of the basic processes in coronary heart disease, suggesting that other risk factors, though important, are secondary.

Plasma lipids. There appears to be a clear relationship between elevations in plasma lipids and cardiovascular disease. These lipids include cholesterol, cholesterol esters, phospholipids, and triglycerides, and are transported as part of macromolecular lipoproteins. Of the four, cholesterol and triglycerides are most implicated in coronary heart disease. Although hyperlipidemia may occur without obesity, both conditions are associated with high fat and/or high calorie diets. A special report by the American Heart Association (Gotto, Bierman, Conner, Ford, Frantz, Guleck, Grundy, & Little, 1985), warns that obese people tend to have relatively high triglyceride and cholesterol levels. The authors cite "obesity and/or habitually high intakes of saturated fat and cholesterol" as the major dietary factors involved in hyperlipidemia (other factors were genetic factors and diseases such as hypothyroidism and nephritis). These findings are echoed by the AHA Consensus Development Conference on Lowering Blood Cholesterol to Prevent Heart Disease (Consensus Conference, 1985). The Conference

concluded that, "Elevation of blood cholesterol levels is a major cause of coronary artery disease," relating diet to the high cholesterol levels of most United States residents. They recommend proper diet as the first step in treatment.

While elevated blood cholesterol levels, in general, may correlate with coronary artery disease, the relationship is far from simple. Reardon, Nestel, Craig, and Harper (1985), studying severity of atherosclerosis, point out that the cholesterol level of the low density lipoprotein (LDL) fraction, not total cholesterol, accounted for a significant percentage of atherosclerosis in men but not women. They found that plasma triglycerides, not the LDL fraction, accounted for a significant percentage of the severity of atherosclerosis in women. The specificity of effect of cholesterol fractions in atherosclerosis is further borne out by their finding that the high density lipoprotein (HDL) level correlates negatively with the disease. These findings indicate that the risk factor of lipids is dependent on both the kinds of lipids ingested and the sex of the population at risk.

Health problems in addition to coronary disease. In addition to coronary heart disease and associated atherosclerosis, numerous other health problems have been linked to obesity. Van Itallie (1979) cites studies which

have disclosed a "striking" relationship between adult onset diabetes and obesity. One study indicated a 10-fold risk in moderate obesity, a 30-fold increase in individuals 45% overweight. Even studies showing only modest correlation between obesity and diabetes become significant when one considers the confound of weight loss that often accompanies diabetes.

Gallbladder disease and osteoarthritis are also significantly correlated with obesity. Excess body fat tends to promote biliary cholesterol which leads to production of "lithogenic" bile and consequent gallstones. Gallbladder disease increases frequency with degree of obesity, and is reported to be three times more prevalent in morbidly obese subjects than normal subjects. Osteoarthritis of the weight-bearing joints, particularly the knees, is also a common problem of obese individuals. Obesity may also produce secondary posture problems (Van Itallie, 1979).

Cardiorespiratory dysfunction, operative risks, and other health risks become more pronounced relative to degree of obesity. Van Itallie (1980), writing about morbid obesity, the condition of being 100% or more overweight, provides a lengthy list of associated health problems including thrombophlebitis and pulmonary embolism, stasis ulcers, uterine fibroid, thrombosis of the renal veins and vena cava, and nephritis. Clearly obesity is a

dangerous and often debilitating condition which demands strenuous treatment. One, often unsuccessful, method of dealing with excess fat is through dieting.

### Weight Control

Dieting. Traditionally, "going on a diet," has been the accepted method of weight control. "Miracle" diets abound in women's magazines, tabloid newspapers, and the health sections of book stores. Such diets appear to be designed to effect quick initial weight loss. They are usually, therefore, very low calorie diets and are often made up of high protein, low carbohydrate meals (Dwyer, 1980; personal observation). Such diets seldom provide an acceptable balance of fats, proteins, and carbohydrates (Brody, 1981) and cause the body to burn glycogen stores, releasing large amounts of water. After the first two or three weeks, which may produce weight losses of five to fifteen pounds, including significant amounts of water, most dieters experience decreases in rate of weight loss to one pound or less per week (Brody, 1981; Katahn, 1982). This sudden diminished weight loss is brought about largely by the body defending against the low calorie diet. Basal metabolism rates routinely drop by 15% to 30% in response to low calorie regimes (Brownell, 1982; Polivy & Herman, 1985). Lethargy accompanies food deprivation and metabolic adjustment, and coincides with more efficient use of food by dieting subjects.

Many diets, then, place dieters in a situation in which their modest weight loss ceases at a much lower caloric intake than that prior to their diet. They must maintain their diet or face rapid weight increases caused by their new "thrifty" metabolism (Polivy & Herman, 1985). Few dieters can, or should, maintain their diets indefinitely. When they go off their diets, either through "backsliding" or on purpose, they tend to regain all the lost weight and more, at their lower metabolic rates. This weight loss followed by regaining to a new, higher level, the "yo-yo" or "rebound" effect, is the rule rather than the exception.

Bjorntorp (1980) reports findings for such a program in a study of 90 obese Swedish women who were placed on a 545 calorie per day diet. The diet reflects the attitude that starch is responsible for obesity, being 18% protein, 48% fat, and 34% carbohydrate. The diet program resulted in a high dropout rate and relapse beginning at three to four months in women showing hyperplastic obesity. The remaining, hypoplastic, subjects maintained weight loss for a longer time, but eventually the relapse rate was such that too few subjects were available to make statistically significant analyses. In an earlier study, Bjorntorp (1978) found that 62 inpatients on a high protein, 800 calorie per day diet had regained weight to a level greater than their starting weights by approximately a year and a

half. These findings duplicated an earlier study of outpatients by Krotkiewski et al. (1977). Considering these kinds of results upon dieting, Polivy and Herman (1985) succinctly put it, "A dispassionate view suggests that perhaps dieting is the disorder that we should be attempting to cure" (p.200).

Other studies, however, have reported quite positive results from dieting strategies. For example, seventeen obese women averaging 87% overweight experienced a mean weight loss of over 40 pounds during a six month very low calorie diet program. At the one year follow-up they had regained an average of only 5 pounds (Wadden, Stunkard, Brownell & Day, 1984).

Eating habits of the obese. There is continued controversy about the eating habits of obese individuals. Early studies appeared to clearly indicate that overweight individuals overate. Stuart (1967) considered that overeating and underexercising were "common characteristics" of overweight people. Nisbett (1968) demonstrated that visual food cues had a significantly greater effect on obese subjects than normal weight subjects. Nisbett's study was followed by others, including that of Schachter and Rodin (1974) which purported to show that eating behavior of the obese is stimulus bound. Continuing research, however, revealed that the evidence for obese individuals responding

differently to internal and external stimuli than non-obese was simplistic and equivocal (Rodin, 1980).

Bray (1983), reviewing studies of eating habits, concludes that "attempts to document an obese eating style have been conflicting." Stunkard and Kaplan (1977) reported that obese individuals ate larger meals than non-obese. Coll, Meyer, and Stunkard (1979), however, reported that eating site greatly affected amount of food chosen, and that there was great variability in amount of food taken at any one site.

Although Bray (1983) concludes that obese subjects tend to take and eat more food and do so more rapidly than non-obese, other investigators have concluded, from the literature, that obese individuals eat no more and may eat less than non-obese (Thompson, Jarvie, Lahey & Cureton, 1980). Foreyt and Kondo (1984) also consider that the concept of obese individuals "overeating" appears to be an oversimplification.

Exercise. Either decreased caloric intake or increased caloric use will result in weight loss. Since pioneering work by Mayer and his colleagues (Johnson, Burke & Mayer, 1956; Stefanik, Mayer, Roy & Mitra, 1956; Stefanik, Heald & Mayer, 1959), evidence has accumulated suggesting that obese adults are less physically active than non-obese (Chirico & Stunkard, 1960; Epstein & Wing, 1980). To the contrary, Brownell (1980) points out that

studies of obese children's activity levels are equivocal and may yield different results for boys and girls. Pacy, Webster & Garrow (1986) further suggest that such confounds as demand characteristics of experimental procedures and failure of studies to demonstrate a relationship between degree of inactivity and obesity cloud the interaction, if any, of physical activity and obesity.

Whether obesity causes inactivity or results from lack of exercise (Brownell, 1982), exercise can reduce obesity. Gwinup (1975) found that eleven women from 10% to 60% "overweight" lost weight (10 to 38 lbs, mean loss 22 lbs) in direct proportion to the minutes of "brisk walking" they performed each day over a period of 60 to 100 weeks. These women did not diet, but began losing weight when their walking times exceeded thirty minutes daily. Gwinup's findings coincide with recommendations of aerobic exercise programs popularized by Cooper (1968, 1970, 1972, 1982).

Exercise and appetite. Increasing physical activity, within limits, in obese individuals is also reported to reduce rather than increase appetite and food intake (Brownell & Stunkard, 1980; Mayer, Roy & Mitra, 1956; Thompson, Jarvie, Lahey & Cureton, 1980). A more recent study by Pi-Sunyer and Woo (1985), however, refutes reports of exercise producing appetite reduction in obese subjects. The authors concluded that, while exercise

results in negative energy balance, it neither increases nor decreases food intake. Presentation of more savory food, however, results in subjects eating more and maintaining positive energy balance. They suggest that food-related cues are more important than exercise-related cues in controlling food intake.

Exercise is believed, by some, to increase lean body mass and maintain, rather than reduce, strength, as dieting may do (Cooper, 1982). An unfortunate side effect of the increase in lean body mass, and accompanying increase in weight, may be to discourage exercise (Bjorntorp, 1976).

While exercise alone may be effective in fat loss or weight control, it is not without its shortcomings. Compliance with exercise programs is poor and dropout rates are high (Brownell, 1982; Martin and Dubbert, 1982). Reviewing exercise in weight control, Epstein and Wing (1980) point out that weight gain from lean body mass increases (e.g. as cited for the study of Bjorntorp, 1976, above) may offset fat loss and discourage subjects. They also conclude that exercise alone can produce very slow weight loss, though heavy individuals lose more weight at the same exercise intensity than lighter people.

One of the most important effects of exercise may be to increase resting metabolism. The effects of exercise on resting metabolism are, however, not fully understood. Recent studies (Pacy, Barton, Webster & Garrow, 1985;

Bielinski, Schutz & Jequier, 1985) arrive at opposing conclusions as to whether exercise does increase metabolism during between-exercise periods. Unfortunately these studies were based on single days of exercise activity so that no training effect can be expected. Warwick and Garrow (1981) found that neither rate of weight loss nor conservation of fat free body mass was changed by exercise in a study which incorporated eight 15 minute exercise periods per day for one or two weeks. Their study may be confounded by a number of factors including the small N of three, the brief experimental period of three weeks (four for one subject) and the brief exercise periods. A three week study by Krotkiewski, Bjorntorp and Holm (1981) revealed no exercise effect in weight loss or protection of lean body mass of women on a 500 calorie per day diet who performed 550 calories of exercise three times per week. Their study, however, may also be confounded by the short, three week, period of exercise. In contrast, Lennon, Nagle, Stratmen, Strago, and Dennis (1985) found a significant relationship between aerobic exercise and maximal oxygen consumption and between maximal oxygen consumption and resting metabolic rate in a twelve week study involving 78 subjects. Subjects performed approximately 30 minutes of aerobic exercise three times per week. Caloric intake was from a diet exchange program and was based on the formula: ideal body weight in pounds

times ten. The authors' results suggest that women, particularly, may benefit from exercise.

Prolonged exercise regimes, lasting over a period of six weeks, appear to induce measurable physiological changes. Depending on the type of exercise, such changes tend to increase muscle strength and anaerobic processes or increase cardiac output and the muscles' capacity to mobilize and oxidize fat and carbohydrate. Probably an aerobic, training effect takes place at some level with most exercise, but aerobic exercise is recommended for weight loss (Donahoe, Lin, Kirschenbaum, and Keesy, 1984; McArdle, Katch & Katch, 1981; Samet & Chick, 1981; Donahoe).

In an eighteen week study, Donahoe, Lin, Kirschenbaum, and Keesy (1984) found that six weeks of diet alone induced metabolic slowdown which nearly halved expected weight loss based on energy intake. The addition of an eight week exercise phase to the diet program raised the resting metabolic rate to levels predicted by energy intake and bodyweight. This increase in resting metabolic rate occurred gradually, over time, suggesting that a training effect was taking place.

In spite of the controversy surrounding exercise, it appears that aerobic exercise not only has a clinically significant effect on resting metabolism and weight loss, it may also be highly advantageous in weight control

programs with compliant subjects. Dieting in conjunction with physical activity seems to maximize weight loss and improve chances for permanent change (Brownell, 1982; Epstein, Wing, Koeske, & Valoski, 1984). Recent weight control studies suggest that proper diet should be combined with at least modest amounts of aerobic exercise (Dahlkoetter, Callahan, & Linton, 1979; Stalonas, Johnson, & Christ, 1978; Thompson, Jarvie, Lahey, & Cureton, 1982; Donahoe, Lin, Kirschenbaum, & Keesey, 1984). Position statements by the American College of Sports Medicine (Anonymous, 1983) and the American Heart Association (Grundy, Bilheimer, Blackburn, Brown, Kwiterovich, Mattson, Schonfeld, & Weidman, 1982) recommend that weight loss programs should include moderate exercise in conjunction with diet. The former association suggests at least 20 minutes of exercise 3 to 5 days a week. The exercise should be of an intensity to burn 300-500 calories of energy.

A Proper Diet. Current dietary recommendations have arisen particularly as a result of epidemiological studies of heart disease and blood lipoprotein levels. To a lesser extent studies of obesity and fitness levels, diabetes, kidney disease and diverticular disease have contributed to modern thinking about diet. Recommendations by the American Heart Association (Grunday et al., 1982) and the American College of Sports Medicine

(Anonymous, 1983) consider that fats should be limited to 30% of caloric intake, and recommend that these should be only one third saturated fats, the remainder to be made up of mono- and polyunsaturated fats. Virgil Brown (in Levy, 1984), a member of the nutrition committee of the American Heart Association, does not consider 30% fat to be the lower limit of allowable fat, and states, "I do not think anyone at the AHA would discourage you from lowering your fat intake to 20% ... particularly if you made the reduction in saturated fat."

Protein intake in the United States, currently recommended at 12% to 15% (Grundy, Bilheimer, Blackburn, Brown, Kwiterovich, Mattson, Schonfeld & Weidman, 1982), is rarely less and probably often more than adequate. For example, Brown and Karmally (1958) cite a study of a population of "pure" vegetarians whose vegetable protein intake provided 17% of their total caloric intake. As a consequence of their vegetarian diets, the population's total fats were very high in mono and polyunsaturated oils, low in saturated fat. Dietary protein deficiency in this country does not appear to be a major problem, rather the problem lies in achievement of proper fat-carbohydrate balance. Reduction of fats to 30% or less of total calories should be accompanied by an increase in carbohydrates to 55% total calories (Grundy et al., 1982). No more than 10% of this total should be simple

carbohydrates (sugar). Recommendations for decreases in fats and increases in complex carbohydrates represent a retreat from past concerns about achieving adequate levels of protein intake. Diets rich in dairy products and red meat, recently popular in the United States, increased dietary fat levels to approximately 45% total calories at the expense of complex carbohydrate consumption. As recently as 1967, 67% of total consumed fats were saturated fats of animal origin (Friend, 1967). Such high saturated fat diets correlate with high incidence of coronary heart disease. Correlational findings related to incidence of heart disease have been well documented by epidemiological studies such as the Framingham study (Castelli, 1984), the Seven Countries Study, Ni-Hon-San Study, Seventh-Day Adventist Study, and Western Electric Study (the latter four cited by Grundy, Bilheimer, Blackburn, Brown, Kwiterovich, Mattson, Schonfeld, & Weidman, 1982).

Hypertension, cigarette smoking, elevated blood sugar, stress, electrocardiograph abnormalities, and other factors are also associated with coronary heart disease (Castelli, 1984). Still, public awareness of the dangers of obesity, high plasma lipoprotein levels, and high saturated fat diets appear to be at least partly responsible for the 30% reduction in coronary heart disease fatalities in the United States since 1950 (Levy, 1984).

As a consequence of accumulating knowledge about proper

diets, more attention is being paid to populations which traditionally depend on vegetable proteins and unsaturated fats. Such diets also tend to be high in fiber. These diets appear to lower risk for certain types of cancer and diverticular disease, and result in low blood cholesterol and triglyceride levels (Brown & Karmally, 1985; Fisher, Berry, Fearn, Gregory, & Hardy, 1985; Beynen & Katan 1985).

The simple diet of the Tarahumara indians of Mexico may represent the most basic of nutritionally adequate diets (Cerqueira, Fry & Connor, 1979). These indians live almost exclusively on corn, beans, and chili peppers. Animal protein sources for the men studied included two eggs, one cup of milk, and three to four ounces of fish, red meat, or poultry per week. This diet provided a balance of 12%, mostly polyunsaturated, fat, including less than 199 mg/day cholesterol, 75% to 80% carbohydrates, mostly starch, and 13% to 14% protein, mostly from vegetable sources. . With a high crude fiber content and low salt and simple sugar component, this diet meets or exceeds daily allowances of major food groups, vitamins, and minerals recommended by the FAO/WHO.

Far from being minimal however, this simple diet permits the Tarahumaras to carry out remarkably vigorous lives. As a part of their culture, both men and women walk and run great distances in routine travel. As a sport the men run 100 to 150 mile races over extremely

rugged mountain paths while kicking a wooden ball. Such races may last more than 24 hours, participants dropping out briefly to rest or eat, then resuming the race where they dropped out (Groom, 1971).

The Tarahumaras' combination of low fat, high complex carbohydrate diet and vigorous exercise appears to render them immune to obesity, coronary heart disease, and hypertension (Conor, Cerqueira, Connor, Wallace, Malinow, & Casdorff, 1978). A four year study of 523 Tarahumaras failed to yield a single case of hypertension. The mean blood pressures in Tarahumara men was 111/73 and did not rise with age. In a comparable group of men in Iowa, mean blood pressure was found to be 135/80. Plasma cholesterol levels were low in all groups of the Tarahumaras (men, women, and children), averaging 136 mg/dl for men between 17 and 79. Mean cholesterol levels for 25 to 59 year old men in the Iowa study were 221 mg/dl.

One might argue that genetic predisposition is responsible for the Tarahumara's remarkable physiological characteristics, that changes in eating and exercise habits would fail to bring about accompanying changes in body fat and plasma lipoproteins. While genetically modified differences in fat and cholesterol metabolism undoubtedly exist, diet has been shown to be highly correlated with plasma cholesterol and triglyceride levels. For example, Japanese living in Japan, obtaining their calories

primarily from carbohydrates, had mean triglyceride levels of only 134 mg/dl whereas American Japanese living in San Francisco had levels of 240 mg/dl (Kagan, Harris, & Winkelstein, 1974). Ethiopian construction workers, eating low fat, high complex carbohydrate diets, had mean serum cholesterol levels of 105 mg/dl. Bank employees who ate less carbohydrate and more fat, had mean levels of 185 mg/dl (Ostwald & Gebre-Medhin, 1978).

Similar studies show that western style diets, high in animal fats and refined foods, low in complex carbohydrates and fiber, cause increases in serum lipids in societies which maintain low lipid levels when eating simple, high carbohydrate diets (Brown & Karmally, 1985).

#### Behavior Therapy and Obesity

Behavior therapy for weight control, originally pushed into the limelight by Ferster, Nurnberger, & Levitt (1962), has been considered the most effective means of producing and maintaining weight loss. A host of techniques, including aversive conditioning, covert sensitization, covert conditioning, therapist reinforcement, self-reward, self-monitoring, various cognitive strategies, social support, self-control, and exercise have been applied with varying results (Abramson, 1973; Mahoney, 1974; Foreyt & Kondo, 1984). Stunkard (1982), however, suggests behavior therapy may have reached the technological limits of its effectiveness. Furthermore, its effectiveness is open to

question. Foreyt and Kondo (1984), analyzing reviews of behavioral methodology, find average losses of only 10 to 12 pounds. They suggest that even these may not be lasting.

In the light of these rather dismal findings, there are several bright spots. For example, Stuart (1980) and Foreyt and Kondo (1984), point out that average weight losses fail to reveal the successes that some behavioral programs have achieved. Furthermore, the most promising results have been achieved by combining increased physical activity, modest diet and the principles of behavior modification.

Exercise compliance. The possible potential effects of increased physical activity in maintaining lean body mass and strength, burning calories, and maintaining an appropriate metabolic rate have been discussed above. Individuals in exercise programs, however, have high drop-out rates. Dishman (1981) reports that drop-outs commonly reach 50% within six months of entry into a program. Furthermore, high drop-out rates seem to be the rule throughout a wide range of exercise programs (Dishman, Ickes, & Morgan, 1980). Oldridge (1981) considers that drop-out rates in exercise rehabilitation programs longer than one year follow an exponential curve, with high initial rates.

High drop-out rates pertain in weight control exercise

programs just as in other health related exercise programs. Gwinup (1975) had 23 of an original 34 subjects drop out of an exercise weight control program over 18 months. Attempts to increase participation in the exercise components of weight control programs suggest that life-style exercise, such as walking a long distance to and from work, may be more successful than programmed exercise (Epstein, Wing, Koeske, Ossip, and Beck, 1982). King and Frederiksen (1984) cite techniques such as contingency contracting and lottery procedures which have been used to optimize short-term adherence to exercise programs. Their own research suggested that social support and relapse preparation may also significantly enhance exercise adherence.

Summarizing attrition in exercise programs, Martin and Dubbert (1982) suggest that the majority of dropouts occur within the first 3 months, with attrition tending to level off at 50% to 70% at 12 to 24 months. They cite behavioral predictors of exercise dropout as smoking, inactive leisure interests, and type A behavior patterns. Overweight, and especially a high percentage of body fat may also figure prominently in exercise dropout (Dishman & Gettman, 1980).

Jarvie and Thompson (1985) question the validity of reports of exercise compliance, and suggest that even though subjects may participate in exercise behaviors,

there can be no assurance that they are exercising correctly. They report on research involving exercise compliance in 16 moderately overweight adults 26-52 years old. Subjects given written instructions on how to ride Schwinn ergomatic stationary cycles were compliant in riding the cycles an appropriate number of days, but failed to ride for the proper length of time and failed to increase pedal tensions. As a consequence they failed to show increases in conditioning when tested. A second group of subjects, given slightly different instructions, showed similar behaviors. Both groups had high dropout rates and many found the exercise boring. Others took great satisfaction in riding the cycles, but at a sub-aerobic, non-effective, load level. The latter subjects, using their cycles persistently, appeared to believe that what they were doing was healthy in spite of its being non-aerobic.

Behavior therapy and diet. The foundations of behavioral treatment of obesity have rested on theories that the obese eat more than non-obese individuals and that they are more responsive to external eating cues and less responsive to internal cues than the non-obese. These basic assumptions have gradually yielded to a belief that obesity is an exceedingly complex phenomenon which cannot be explained by simple causation terms (Rodin, 1980; Van Itallie, 1980).

In general, the best long term weight control results may be obtained from programs combining calorie restriction with exercise (Brownell, 1982; Epstein, Wing, Koeske, & Valoski, 1984). Specific populations, for example extremely obese individuals, may benefit more from diet alone (Wadden, Stunkard, Brownell & Day, 1984; Wing and Epstein, 1981).

In view of the average diet of individuals living in the United States, dietary improvement may be an important adjunct to calorie restriction. Such diets tend to be high in fats and sugar (Brewster & Jacobson, 1978; Katch & McArdle, 1983). Bray (1983), using several data sources, reported Americans consuming approximately 15% total calories from protein, 37-40% from fats, and only 40-45% from carbohydrates, with a high percentage of refined sugar. Appropriately designed diets (for example, Katahn, 1983) tend to follow dietary guidelines published by the American Heart Association and the American College of Sports Medicine (Grundy, Bilheimer, Blackburn, Brown, Kwiterovich, Mattson, Schonfeld & Weidman, 1982). These guidelines suggest a weight loss of not more than 2 pounds per week, to be effected by a combination of exercise and caloric reduction. Furthermore they recommend a balanced diet with total fats reduced to 30% total calories; carbohydrates, emphasizing complex carbohydrates, increased to 55% and proteins held to 12 to 15%.

A balanced, nutritious diet may be critical in terms of weight control programs for several reasons. Such a diet tends to exclude "empty" sugar calories and high-calorie fatty foods while promoting bulky, fiber-rich complex carbohydrates and vegetable proteins. These food combinations are filling, satisfying hunger. Combined with an exercise regime, this type of diet will tend to produce fat loss rather than water loss while maintaining lean body mass and energy level (Bray, 1983; Donahoe, Lin, Kieschenbaum, & Keeseey, 1984). Such diets also provide reasonable life-time eating plans, and need not be modified when target weight is attained other than to slightly increase caloric intake.

Criticism of behavioral techniques. A large number of behavioral techniques have been tried in weight control, most rather similar. Such programs tend to produce 10-12 pound average weight loss, have an average length of treatment, 8-12 weeks, and result in no average change in weight one year after completion of treatment (Foreyt & Kondo, 1984). What has become apparent, however, is that the early assumptions behind behavioral treatments of obesity, such as the externality theory, are no longer considered gospel (Rodin, 1981; Foreyt & Kondo, 1984).

A second major concern in the development of behavioral treatments of obesity lies in the difficulty of monitoring the process by which weight loss occurs. Weight programs

have been assumed to be effective because they resulted in weight loss, but often little or nothing is known about what the subjects in the program actually were doing to cause the weight loss. Behavioral weight programs also tend to be uniform in format. Because of time and logistical limitations, most weight control programs are given once a week for 8-12 weeks using a group format with 10-20 individuals in a group. This uniformity coupled with the assumption that the strategies will be practiced by the subjects and will be uniformly beneficial has been criticized by Foreyt and Kondo who call it the "kitchen sink" approach. Stalonas, Johnson, & Christ (1978) have suggested that, "It may well be that any procedure with a credible rationale, behavioral or otherwise, that engages subjects and continuously prompts their attention to weight loss will be effective."

Delivery of weight control programs. Program delivery may be an important variable influencing outcomes of behavioral weight programs. Wilson (1980) suggests that behavioral treatment will be successful to the extent it is made as easy as possible and integrated into a person's lifestyle as much as possible. Listing specific behavioral techniques, Wilson suggests that self-reward for changes in eating habits, cognitive self-control techniques, exercise, mobilization of support systems, and post-program maintenance strategies are important. He

also encourages the use of specific, well-defined assignments with clear rationale for treatment methods and effects; and public commitment by both the therapist and clients, to homework assignments. Thus, Wilson stresses the method by which behavioral techniques are delivered in addition to the techniques themselves.

Stuart (1980) also stresses delivery, considering it one of three "technologies," the other two being a technology of focal behavior change, and a technology for maintaining the change. Stuart, as Wilson, suggests specific behavioral techniques appropriate to focal behavioral change and maintenance, but concludes that, "the most well-conceived change and maintenance-of-change strategies might be little more than the intervenor's good intentions if they are not presented in a manner that captivates the client's interests and mobilizes their desires to change" (p. 158).

Rationale for the present study. The purpose of this study is to try to improve the outcomes of a weight control program by presenting it in a highly persuasive framing style. If behavioral weight control programs have reached their technological limits (Stunkard, 1980), program effectiveness may still be improved by persuading subjects to carry out more program behaviors, or to carry them out more effectively.

Origins of techniques for persuasion lie in early

writings on rhetoric. Aristotle (Miller, Burgoon & Burgoon, 1984) equated rhetoric with effective persuasion two thousand years ago. The study of persuasion by social scientists, however, came to the fore during World War I, in attempts to rally support for the war. Initial efforts of social scientists, then, involved attempts to conceptualize and influence attitudes.

From the 1920's through the period of World War II major studies were conducted on the effectiveness of persuasive communication. Such probes into the mechanics of individual belief systems and responses to persuasive messages resulted in the publication of Adorno, Frenkel-Brunswick, Levinson, and Sanford's The Authoritarian Personality in 1950. This was followed by Festinger's (1957) Theory of Cognitive Dissonance. Both books engendered great interest in theories of attitude change over the next 20 years (Miller, Burgoon & Burgoon, 1984).

Among the theories developed during the period from World War II to the early 1960's, and germane to the present study, were Guthrie's law of prepotency and Kelly's ideas concerning consensus information, expressed in his theory of man as a lay scientist. Guthrie's law proposed that "...the more stylistically vivid or novel the persuasive stimuli, the more likely it ... will produce emotional responses, which will lead to more rapid

conditioning of the response to the stimuli," (Miller, Burgoon & Burgoon, 1984). Kelly espoused an opposite view, believing that individuals responded to consensus information in making attributions about people or events. Research during the past fifteen years, however, suggests that consensus (base-rate or actuarial) information is consistently ignored in favor of information which is vivid, salient, and concrete (though not necessarily correct or logical).

Although they do not refer directly to Guthrie's law of prepotency, Nisbett, Borgida, Crandell, and Reed (1976) present a compelling review to show that vivid, salient, concrete information has power to call up "scripts" or schemas involving similar information. Consequently people are highly influenced by such information in contrast to more detailed, base-rate information. They cite five studies in which concrete, emotionally interesting (vivid) information was employed by subjects in their opinion formation while more logical, accurate, base-rate information was ignored. For example, Nisbett and Borgida (1975) provided subjects with brief videotaped interviews of two students who participated in an electric shock study. They then gave subjects detailed base-rate data concerning the behavior of all students in the shock study. When subjects were asked to estimate behaviors in the experiment they consistently ignored the base-rate data

and derived estimates from the interview information. The authors comment (1976, p. 131), "Our students behaved as if they extracted more information from in vivo comments of a couple of people than from the dry, statistical summaries of entire populations."

Borgida and Nisbett (1977) suggest that base rate information, by nature, is abstract and pallid, lacking the "force to trigger cognitive work." Concrete-vivid information may, in contrast produce cognitive work which overrides the base-rate information. They describe an experiment in which prospective psychology students ignore written course evaluations in favor of evaluative comments verbalized by several students who were confederates of the experimentors. Tversky and Kahneman (1971) refer to this phenomenon as "belief in the law of small numbers," pointing out that people seem to have no concept of the unreliability of statistics based on small samples compared with large-sample data.

While the impact of vivid information has been demonstrated in analog studies, Yates and Aronson (1983), proposing a plan to encourage home energy conservation, have summarized the use of this and related strategies in applied settings. In all cases they report that base-rate information tends to be ignored. Instead, people respond to vivid, personal (such as anecdotal), and simplified information which involves easily identified peers with

similar life styles and problems.

Weight control programs such as that of Stuart (1980) and the one adapted for the present program present technically framed information which includes a high percentage of what Nisbett and Borgida characterize as base-rate information. In view of the kind of information most likely to produce response, it appears that specific efforts to introduce vivid, personal, simplified, peer related information into weight control programs will result in enhancement of program outcomes. Specifically, such information ought to be more persuasive, persuading subjects to carry out more program activities more often than those subjects who receive pallid, base-rate information.

## METHOD

### Pilot Study

The main weight control study was preceded by two pilot studies. The first, a five part weight control workshop, was presented in May, 1984. Weekly sessions included an introductory sessions followed by sessions which provided strategies for weight control through diet, exercise, and cognitive self control techniques. Approximately 30 men and women each paid \$15 to participate.

This workshop resulted in several findings which helped guide the main study. Many of the participants had little knowledge of proper nutrition, and tended to eat far too much fat. Furthermore, some had no idea of their daily caloric intake or the balance of major food groups they were eating. One woman, who estimated her daily food intake at 500 calories, was astonished to find she had underestimated by 1500 calories. Finally, several individuals initially reported daily calorie and exercise levels which did not appear to be accurate in view of their later self reports.

A dissertation study of framing variables in a weight control project was begun in the Fall of 1984. The first step in this major study was a twelve week pilot study conducted from October, 1984 to mid December, 1985 to allow examination of program variables and subjects' reactions to

the program. Subjects were five female employees of VPI&SU who responded to a word of mouth announcement. Two of the subjects dropped out of the program during the early weeks. The remaining three completed eight or more weekly meetings. Preparation of the pilot materials and feedback from the subjects provided program improvements, such as refinement of written materials and simplification of assignments, that were incorporated into the program prior to its being presented to subjects in the main dissertation study.

The proposed major dissertation study included both segmentation (variable entry and participation levels) and verbal framing variables (differences in the language and style with which the material was presented). During the course of the pilot study, however, objective criteria for segmentation were found wanting. Consequently only the framing variable was retained for the major dissertation study.

Participants met weekly for the first eight sessions, bi-weekly thereafter until termination of the pilot. Each session lasted forty-five minutes and consisted of approximately fifteen minutes of new information delivered by the therapist, ten to fifteen minutes of discussion of that material, and fifteen to twenty minutes of "support group" activity. During the later period, individuals discussed their problems and problem solving, offering

ideas and encouragement to one another. The program consisted of "vividly" framed materials. This framing, it was hypothesized, would be the most successful in the major dissertation study (below). The other framing style, the "behavioral" framing, was not used in the pilot study as a successfully applied behaviorally-framed program was already available as a model. Categories of measures, for example, program compliance, physical, and physiological measures, used in the dissertation study, were also used in the pilot study. Additional measures within those categories, however, were added to the main dissertation study.

Results obtained from the pilot study indicated that the planned procedures would be acceptable to subjects in the major study and would provide appropriate data. All subjects responded positively about the idea of "eating better," that is, a healthier, balanced diet. The self reports of two indicated they were reducing their fat and total caloric intake. These two subjects lost 5 and 7 pounds during the initial month of the program. The third subject failed to lose weight and admitted to not adhering to the diet or exercise guidelines. She nevertheless continued to participate. The subject who lost 5 pounds lost no further, complaining that illness prevented her from exercising. The subject who lost 7 pounds eventually lost 12 pounds but then had to drop out of the program

because of thesis work. All subjects stated they felt the program worked and was acceptable to them. Upon completion of the pilot study preparations for initiating the major study were begun.

### Major Study

#### Subject recruitment

An announcement of the program was placed one time in the VPI&SU faculty and staff newspaper. In addition, approximately sixty handbills were placed on the VPI&SU campus and in public places around the town of Blacksburg, Virginia. Individuals who inquired about the program were informed about a weigh-in by telephone. Eighty-four women attended introductory meetings held the ninth and eleventh of April, or, if they missed these meetings, registered at the first program meetings held the week of April 22.

#### Design

The major study involved three conditions, a delayed-treatment control, a vividly framed weight control group, and a behaviorally framed weight control group. Condition 1, the control group, was created by offering a weight-control workshop to individuals who applied for the treatment groups after the deadline. These individuals were weighed and their heights obtained at the time of their application. They were promised a weight control workshop to be held approximately eight weeks from their weigh-in.

The relatively small group which appeared for the control group weigh-in dictated that other no-treatment subjects be obtained as well. These were recruited post-hoc from the list of individuals who attended an introductory meeting but failed to begin the program. A total of six subjects, of the large number contacted, were thus obtained for the no-treatment control condition. This control group, though small, was nevertheless large enough to provide a comparison with the small number of experimental subjects, ranging from 3 to 9, who participated in the seven week weigh-in. Weight control activities carried out by control subjects, however, produced a confound which is discussed below.

Condition 2 (vivid framing) consisted of two groups of participants who received both written and verbal portions of the weight control program framed in vivid, personal terminology and illustrated with anecdotal information. The program materials for condition 2 are presented as Appendix F.

Condition 3 (behavioral framing), employed with two groups of participants, involved verbal and written portions of the program couched in behavioral terminology (Appendix G). The terminology employed was derived from a successfully employed weight control program.

Distinct vivid and behavioral framing styles were developed by listing verbs, adjectives, adverbs, and nouns

used in a behavioral weight control program and then pairing them with more commonly used, "vivid," cognates or phrases. For example, "diet" was paired with "eating better," "monitor" with "list" or "write down," and "exercise" with "pleasant brisk walk." Vivid materials were presented in anecdotal style. The following example demonstrates the vivid framing style:

"Mary, of Blacksburg, is a 33 year old biology teacher. Recently she was surprised to discover that her carefully 'balanced' meals were responsible for her weight gains and her lack of energy. Her seemingly heathy diet was really not very good at all. She was astonished to find how much of the 'wrong' kinds of foods she was eating without even realizing it. Could you have the same problem as Mary? This week you will have a chance to think about what you eat and to learn how you can eat better. Doing this will be simple. Just keep a list of everything you eat each day for three days. Jot down the kinds of food, amounts, where you are eating, and the time."

The same information in a behavioral style reads:

"This week one of your tasks will be to monitor the

calories you consume. Having a better understanding of your current food intake will enable you to develop better eating habits. By daily self-monitoring for three days you can determine what you are eating, what categories the foods fall into, and the caloric content of the food. Monitoring is simple. Just record everything you eat for three days on your daily record sheet. Include information about the time, what you eat, and the amount."

### Participants

The first two program meetings represented a period of decision for the 74 subjects who attended. For various reasons some did not participate beyond the second meeting. A total of 55 subjects did attend more than the first two meetings, or more than two meetings total, and these are called "participants." Of the participants, those who discontinued attendance prior to the seventh meeting are considered "dropouts." The percentages of dropouts, then, is based on fifty-five participants, a distinction being made between dropouts and "non-participants" who chose not to participate in the program beyond two meetings.

Participants were obtained from a group of women ranging from 17 to 59 years old who responded to

advertisements for a six-month weight-control program. The mean age of respondents was 30.8 years, the median was 30.5. Fourteen were graduate students, twenty-one undergraduate students, thirty-three were VPI&SU employees, and sixteen were housewives or were otherwise employed out of the University. Seventy-four of the original 84 respondents actually began the program.

Participation in the program was open to women who wished to work on "weight control," and no weight criteria were established for entry. Some screening was undertaken by discussing medical problems with some of the registrants and advising them not to participate or only to participate with their doctor's permission. Two quite thin individuals were questioned concerning their interest in the program. Neither returned following the first meeting.

Because subjects were unselected on weight or body-fat criteria, they represent a cross-sectional sample of women with personal interests in weight control rather than the highly selected "obese" groups common to experimental studies. Thus, the composition of the participant group may be expected to be similar to other applied weight control groups such as "Weight-watchers," "TOPS," or "Overeaters Anonymous." Based on Body Mass Indices (see below), 19% of the 74 appeared not to be "overweight," 26% were 1 to 10% overweight, 18% were 11 to 20% overweight,

21% were 21 to 49% overweight, and 16% more than 40% overweight. Thus, 65% of the subjects were more than 10% overweight.

### Group Composition

Registrants were encouraged to indicate friends with whom they wanted to be grouped. They also indicated times or days they absolutely could not meet. This information was then used to organize groups. An attempt was made to match participants, in each group, in categories such as pairs of friends, grossly overweight, average weight, and students and non-students. The result was four semi-matched groups. The six o'clock times were less popular than the five o'clock times. As a consequence, the six o'clock groups were smaller than the earlier ones.

This method of group organization appears to have permitted a self-selection process which may have "loaded" the 5 o'clock groups with older, married subjects and the 6 o'clock groups with younger, unmarried subjects. The effects of this loading are discussed below.

### Therapists

Two therapists were involved in conducting the programs. One, Thomas, a fifty-one year old male with a background in biology, exercise, and clinical psychology,

the other, McGlone, a 24 year old female with a background in exercise and clinical psychology. Both therapists' body weights fell within limits suggested in 1983 Metropolitan Insurance height-weight tables. Body fat percentages for both therapists were at or below suggested levels for their ages. Each therapist conducted one vividly framed group and one behaviorally framed group. Thomas' groups met at 5 and 6 o'clock on Tuesday. McGlone's met at the same times on Thursday.

### Setting

Initial weigh-ins and height measurements were carried out at the Psychological Services Center, 1.4 miles from the VPI&SU campus. Subsequent weigh-ins and all other portions of the study were conducted in classrooms at Derring Hall on the Campus. The classrooms were furnished with chair-desks and seated approximately sixty people. Participants sat where they wished, tending to fill the front rows. Therapists moved about, often sitting in one of the front desks or standing near the blackboard. In McGlone's five o'clock group participants asked and were given permission to move their desks into a circle, otherwise the seating was as for a typical classroom. This particular group, incidentally, enjoyed the least success of any of the groups.

## Measures

The measures employed in this study were of several types. The first category involved periodic physical measures, some of which would be expected to change during the course of the program. The second category involved a pre-, post-measure of weight-control knowledge. This was expected to measure relative amounts of learning which took place during the program. The third category of measures involved measures designed to indicate degrees of participation in and compliance with the program. A fourth category included a miscellany of measures which were not expected to change, but which were used in conjunction with other measures. These included such diverse measures as height, personal preferences for weight control program activities, and scores on the Dishman Motivation Inventory.

Physical measures. Height and weight were obtained using a physicians' beam balance scale located at the Psychological Services Center. The balance was zeroed before use and checked periodically during weighing. Subjects were weighed with their clothes on, but removed shoes and coats. Pre-program weights were obtained at the Psychological Services Center on Saturday, 13 April, prior to the introductory meeting. Subsequent weighings were conducted in the psychology graduate students' room, 4092 Derring Hall, on the main VPI&SU campus, using the same

balance.

Triceps skinfold measurements were made using a SlimGuide skinfold caliper supplied by Creative Health Products, 5148 Saddle Ridge Road, Plymouth, MI 48170. This plastic caliper reads skinfold to plus or minus 1 mm. at a spring load of 8 to 10 grams/sq. mm.

Resting pulse rates were obtained by instructing registrants in obtaining both carotid and wrist pulse counts and then timing their counts for 20 seconds using a Casio H 110 digital chronograph (wrist watch).

Weight control knowledge. A fifteen question quiz of weight control knowledge was given during the introductory meeting and again, six weeks later, at the seventh meeting. Questions involved information about diet and exercise deemed necessary to successfully participate in the program. A copy of this quiz is presented in Appendix E.

Attendance. Attendance was taken at each group meeting and, following the meeting, was recorded in a permanent record book. Registrants who attended beyond the second meeting were, for the purpose of this study, considered participants. Arriving late to a meeting, or leaving early, was always counted as having attended that meeting.

Homework. Weekly homework assignments involved both physical activity (walking or other exercise of choice) and

some other activity which would reinforce dietary improvement (for example, monitoring food intake, preparing shopping lists, avoiding snack-food aisles in the supermarket). Points were given for completion of these assignments. Participants indicated, by filling out self report forms, their estimates of the percentage of points they had earned each week. Tasks such as monitoring food intake for three days, making out a shopping list of "good" foods and bringing in the list and store receipt, and listing eating problem behaviors and times each earned 100 points. Initially subjects earned 300 out of 400 points for such diet related behaviors. When subjects were first introduced to walking as an exercise form, they were able to earn 100 points with sub-aerobic walking, thus bringing their total to 400 points. When they had reached aerobic levels of walking or other exercise, by the fifth week, they were to earn 200 points walking and the remaining 200 points carrying out diet related assignments. Copies of all homework assignments and homework "points earned" forms are included with the weekly handouts (see Appendices).

Not all homework compliance was measured by self report. Approximately thirty spot checks of physical activity yielded qualitative data on exercise compliance. The writer observed three subjects exercise-walking on four occasions. These subjects are considered further in the Discussion section.

Four non-exercise assignments were of a type for which compliance did not depend on self report but could be accurately determined by byproducts of compliance. These included bringing in shopping lists and grocery receipts, and responding to an unannounced phone call with correct information from a calorie problem work sheet. Finally, two optional group exercise walks were held during the second and third weeks of the program. Participants signed a roll sheet and were instructed in pulse monitoring and proper walking speed during the walks.

Aspects of homework compliance have been considered both independently as well as combined with attendance through 6 June to produce a "compliance coefficient" for the purpose of this study. This coefficient is the attendance + each homework score divided by the maximum score attainable (yielding a maximum of 1 point for each homework assignment). Finally, one point was added for each of five additional tasks. The maximum score is 18.

In addition to weights, Body Mass Index and Weight Reduction Quotients were computed and used as dependent measures. The former (BMI) is derived from the weight in kilograms divided by the square of the height in meters. This index, which shows a direct relationship with morbidity and mortality, provides a useful measure with which to characterize body-fat levels of populations (Burton, Foster, Hirsch & Van Itallie, 1985). Weight

reduction quotients are equivalent to weight loss goals divided by actual weight loss, and provide an actual percentage of attainment of weight goals.

Preference, goals, and other measures. The amount of time each day that subjects were willing to put into a weight control program was determined by a personal information questionnaire at the introductory meeting (Appendix A). Other information obtained using the questionnaire included the goal(s) subjects hoped to attain by being in the program, their estimate of their ideal weight and pounds they were overweight, their age and history of weight "problems," their opinion of the reason(s) for their weight problem, whether or not they had gained or lost weight in the past month, and why they felt their goals were reasonable in the six month duration of the program.

Dishman Motivation Inventory. The Dishman Motivation Inventory (Appendix B) was given during the fourth meeting. This forty item inventory has been found to correlate highly with compliance with exercise programs (Dishman et al., 1980). Its use was decided upon, after initiation of the program, to determine its effectiveness in predicting compliance in weight control.

Final weight control preference questionnaire. A questionnaire was designed to reiterate and amplify some of the questions asked in the introductory session.

Specifically, participants, dropouts, and non-participants were asked about their goals, the time they would like to allocate to weight control, and their feeling regarding the number of meetings and format of an "ideal" weight control program (Appendix D). This questionnaire was presented to subjects during the sixth month in an attempt to elucidate perceived differences between subjects who participated and those who dropped out or chose not to participate.

### Procedures

All respondents to the advertisements were called by telephone and told they could register for the program at a Saturday morning weigh-in. Weighed subjects were then contacted by phone regarding their group placement.

Subjects' preferences indicated that 5 and 6 P.M. would be acceptable to the greatest number of individuals. As groups were formed, group size varied, for fewer individuals were able to meet at 6 P.M. than at 5. Because of the variation in group size and time of meeting, vividly framed groups were scheduled for 6 o'clock on Tuesdays and 5 o'clock on Thursdays, behaviorally framed groups at 5 o'clock Tuesday and 6 o'clock Thursday. Thus each pair of framing groups consisted of one large (20-25 subjects) 5 o'clock group and one smaller (15-16 subjects) 6 o'clock group.

Registration. All individuals responding to the

weight control advertisement were told they could report for registration at 5 P.M. on Tuesday, 9 April or Thursday, 11 April. Seventy-six women registered during these two days. The remaining eight registered subsequent to 11 April. All registrants completed a personal information questionnaire (Appendix A). They then completed the weight control quiz and signed a consent form (Appendices C and E). Upon completion of these tasks they were given a brief verbal description of the program, its methods, and goals. Finally, they were notified of the place and time of the weigh-in.

Weigh-in. A weigh-in was scheduled on Saturday, 13 April, 1985 for all registrants. Sixty-nine registrants were weighed to the nearest 1/4 pound and their heights measured to the nearest 1/4 inch at this initial weigh-in. The remaining subjects, who were unable to attend or who registered late, were weighed over the subsequent two weeks. Following the weigh-in all registrants were notified by telephone of the regular meeting times and sites. Individuals who had conflicts with group assignments were reassigned during the telephone calls.

Introductory meeting. Seventy-four of the original 84 subjects attended the first group meetings were held at five and six P.M. on Tuesday and Thursday, the week of April 22. All who attended received two calorie counting

handouts. They were also given a six page "First Week" handout (Appendices F & G). This handout contained information enabling participants to monitor, analyze, and improve their daily diets. Participants were asked to monitor everything they ate for three days. From their monitoring sheets they were then asked to use their calorie counting handouts to convert estimated grams of food items to their component calories of the three major food groups, fat, protein, and carbohydrate, for each day. From these data they were asked to determine total daily calories. Food monitoring sheets were included in the handout, providing a "flow chart" by which participants could calculate the necessary information. A table of appropriate caloric levels of fats, proteins, and carbohydrates for a range of daily calorie intakes from 1500 to 2600 calories was also provided so that participants could tell at a glance what caloric levels of the food groups they should be eating. Finally, participants were asked to complete a form containing a three step method for analyzing their base-line dietary data. This handout provided a stepwise method for participants to estimate calorie reduction necessary to produce weight loss, and for adjusting daily food intake to provide a nutritionally balanced diet.

During this meeting participants were also introduced to the idea of using walking as a healthful form of

exercise which could mean the difference between their diets working or not working. The homework assignment for this first week involved the participants monitoring, analyzing, and correcting their diets. The exercise component of their homework required them to walk fifteen minutes a day for each of four days.

As was done throughout the program, two versions of the handouts were provided, one vividly framed, the other behaviorally framed. The verbally delivered portions of the meetings were couched in the language appropriate to the framing style.

Meetings two through eight. Weekly meetings were held through the eighth meeting. During these meetings participants were instructed in behavioral techniques for coping with a variety of problem eating behaviors. The problem areas covered included specific times, places, and foods; feelings; better ways of food preparation; shopping tips; family needs; and self and family sabotage. Self control was stressed, and the techniques of self-reward, response substitution, stimulus narrowing, and establishment of short term goals were explained and encouraged.

Participants were informed of the importance of minimal levels of aerobic exercise in weight loss and life time weight control. From the second to the eighth week they increased their walking time to the final goal time of

forty minutes a day, four days a week. Alternative types of exercise were introduced for those who preferred not to walk. Heart rate monitoring was explained and practiced during group meetings. Walking assignments were coupled with specified aerobic levels, achieving 60% maximum heart rate by the beginning of the eighth week.

In addition to the emphasis on appropriate eating and exercise behaviors, participants continued to receive instruction for achieving healthy, balanced diets. The essence of this instruction was reduction of fats and sugar and increase of fruits, vegetables, and complex carbohydrates. Participants were provided with recipes, lists of suggested foods, and new ways of preparing foods or modifying existing eating habits such as producing low-fat "country cooking."

The eighth meeting was considered the culmination of the basic program. During the approximately four remaining months the emphasis switched to overcoming problems such as sabotage, relapse into maladaptive behaviors, and weight "plateaus." The interval between meetings was extended to two weeks for meetings nine and ten. Consequently, the handout for the eighth meeting included pages with a two week plan for weight control and suggestions for overcoming problems that might arise over the two week interval.

Meetings nine and ten. Meeting nine was held two weeks after meeting eight. Meeting ten followed two weeks

after meeting nine. The two week time intervals between these meetings was extended to one month in the final three meetings. The meeting nine handout (Appendices F & G, "Tenth Week") contained a reminder about the importance of daily goals and suggested that increased exercise levels could be used to lose regained weight or to overcome weight plateaus.

Meeting ten represented the three month point of the program. Only three, monthly, meetings remained following this meeting. The meeting ten handout (Appendices F & G, "Twelfth Week") reviewed the progress of a hypothetical participant, briefly discussing some of the pitfalls and "sticking points," to be expected in the program. As in all group meetings, the topics of the handout were used as discussion topics by the group members.

Meeting eleven and twelve. These meetings were held at one month intervals, at the ends of the fourth and fifth months. Major emphasis was directed toward problem solving and helping subjects recover from relapses into poor eating and exercise habits. Again, basic diet and exercise requirements were reviewed. Problems and achievements were related to proper balance of the three food categories, sensible calorie reduction, and adequate exercise. Participants were encouraged to attack problem areas by monitoring and correcting eating and exercise habits.

Meeting thirteen. This last meeting was used for a final weigh-in. Participants were also asked to fill out a weight control preference questionnaire. This questionnaire was also mailed to all registrants, dropouts, and participants who failed to attend the last meeting.

### Control group

Selection. Individuals who applied late for the program, after the introductory meeting, or who missed the introductory meeting, were invited to participate in a weight-control workshop to be held approximately 8 weeks later. These individuals were to comprise a no treatment control group. Three of twelve individuals contacted appeared for the requisite weigh-in. In order to enlarge the control group it was decided to contact registrants who had not continued with the program after the initial meeting.

Workshop. Two months after the beginning of the program, on 22 June, eight individuals were offered a two hour weight-control workshop (Appendix H). Six of the eight attended. The workshop consisted of a summary of the major weight control program. Following the presentation, the control group participated in discussion of their specific weight problems. Then all participants were weighed.

### Framing controls

Standard terminologies for the two framing variables were drawn up prior to beginning of the program. Where possible, individual words were used to provide behavioral framing or vivid analogs. Often phrases had to be substituted for specific words. The lengths of written materials were kept nearly identical, within several lines, for the two framing variables. In addition to the use of analagous vivid and behavioral words and phrases, the vivid framing style included anecdotal material. The anecdotes were presented as if spoken by a participant in the weight control program.

In order to maintain the framing styles in the verbally delivered portions of the program, both therapists adhered closely to the written materials for each meeting. Four sessions, two of each framing style, were taped using a cassette recorder and were reviewed by a third therapist not associated with the program. This therapist, acting as a judge, compared the therapists' delivery for enthusiasm, content, and adherence to the framing style. She also compared the two framing styles in terms of homogeniety of the information being delivered. Both the judge and the senior therapist agreed that the two therapists' deliveries were quite similar to one another and consistant with the framing style.

Furthermore, the information being delivered by the two framing styles was judged identical.

## RESULTS

The purpose of this study was to determine if vivid-personal verbal framing would yield more positive changes in weight control behaviors and greater weight reduction than traditional behavioral-impersonal framing. The major independent variable is the verbal framing variable. Therapist and time of day are also treated as independent variables in terms of their possible confounding effects. The dependent variables include Weight Reduction Quotients and total weight loss at seven weeks and six months, attendance, Index of Compliance, Dishman Motivation Inventory scores, and change in weight control knowledge scores.

Measures of resting heart rate and triceps skin-fold were initially included, but unfortunately neither proved useful due to confounds. Subjects were shown how to take both carotid and wrist pulse measurements, but many continued to prove unreliable during spot checks in later sessions. A second confound occurred when subjects' heart rates were raised by their rushing to get to the meetings or by climbing stairs. Individual reports of lowered resting heart rates were received, but efforts to obtain accurate group rates were abandoned.

Problems obtaining triceps skin-fold measures were discovered in specific individuals whose skin was stretched

very tight by fat deposits. Attempts to obtain measures from these individuals resulted in wildly variable readings that negated the more accurate measures on other individuals. Although significant decreases in mean triceps skin-fold thickness were found at the six month weigh-in (below), these results are not considered reliable. Scherf, Franklin, Lucas, Stevenson, and Rubenfire (1986) have discussed the difficulties inherent in using skin-fold measures, suggesting that skin-fold equations are valid only when applied to subjects of comparable age, sex, body composition, and demographics. It appears the population heterogeneity of this weight control group significantly reduced the value of the skin-fold measures.

#### Homogeneity of the groups

Group assignment. Assignments to the four experimental groups resulted in group I being assigned 20 women, group II 16, group III 23, and group IV 16. Inequalities in the group sizes were brought about primarily by scheduling constraints indicated by participants. Attrition occurring during the first two meetings further modified group composition, reducing group sizes to 17, 13, 16, and 9 respectively. Individuals who failed to attend more than two meetings are designated "nonparticipants." Usually the two meetings attended were the first two, but three individuals who attended two

meetings other than the first two were also considered non-participants. Reasons given for failing to attend more than two meetings included unforeseen scheduling difficulties, baby-sitting problems, changes in jobs and schedules, and dislike of other people in the program.

There were no statistically significant differences between non-participants and those who continued beyond two sessions in Dishman Motivation Inventory scores, marital status, age, weight, or six month weight goals (Table 1). Treatment dropouts however, those who participated beyond two sessions but dropped out before the seventh week, were significantly younger than the remaining "participants." A one-way analysis of variance of age, between the non-participants, dropouts, and participants yielded a value of  $F(2,71) = 5.2386$ ,  $p=.0075$ . A Tukey Honestly Significant Difference test indicated a significant difference between the ages of dropouts (mean age 27.1 years) and participants (mean age 35.2 years),  $p < .05$ . Similarly, a one way analysis of variance of DMI scores yielded a significant value of  $F(2,46) = 4.8341$ ,  $p=.0124$ . Again a Tukey test indicated significant differences between DMI scores of dropouts (mean score = 125.1) and participants (mean score = 144.9) (Tables 1 and 3). These differences appear to be predictive of dropout following the initial self-selection process and will be considered in the Discussion section.

TABLE 1

Demographic and Treatment Variables  
by Participant Status

	<u>Beginning (Pounds)</u>									<u>F Ratio</u>	<u>P</u>
	<u>Non-participant</u>			<u>Dropout</u>			<u>Participant</u>				
	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>		
I	3	159.0	28.0	5	175.2	29.6	12	170.3	39.9	.1875	.83
II	3	183.0	28.2	6	156.88	16.4	7	168.9	32.8	.9775	.40
III	6	156.3	40.1	7	164.3	49.5	9	161.7	15.7	.1858	.83
IV	6	144.7	18.7	3	156.0	7.2	6	161.7	15.7	1.7239	.22
	<u>Weight Loss (Pounds)</u>										
I	3	34.7	13.7	5	46.6	25.2	12	34.8	23.8	.4912	.62
II	3	43.0	17.7	6	35.0	17.2	7	25.6	9.8	1.7056	.22
III	6	31.5	26.7	7	27.4	17.0	9	31.6	16.4	.1025	.90
IV	6	19.3	3.2	3	27.3	3.8	6	27.2	10.8	1.4231	.28
	<u>Age (Years)</u>										
I	3	30.7	16.1	5	32.2	7.3	12	37.8	11.3	.7356	.49
II	3	36.3	3.1	6	23.2	4.6	7	36.0	12.6	3.7575	.05*
III	7	27.4	10.3	7	29.4	4.4	9	37.7	10.3	3.0106	.07*
IV	6	27.2	6.6	3	21.0	4.0	6	25.3	5.4	1.1604	.35

TABLE 1 (Continued)

Demographic and Treatment Variables  
by Participant Status

Group	<u>DMI Scores</u>									<u>F Ratio</u>	<u>P</u>
	<u>Non-participant</u>			<u>Dropout</u>			<u>Participant</u>				
	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>		
I	1	130.0	0.0	5	128.6	12.1	10	142.6	18.5	1.2694	.31
II	2	168.0	24.0	4	130.3	29.1	6	139.3	31.5	1.0781	.38
III	0			6	118.3	26.9	7	153.6	22.5	6.6249	.02**
IV	2	147.0	38.2	1	127.0	0.0	5	144.0	18.2	.2629	.78
<u>Test Scores</u>											
I	3	51.0	10.1	5	46.6	13.5	12	59.4	12.1	2.1127	.15
II	2	73.5	9.2	6	60.0	18.7	7	59.0	15.6	.6269	.55
III	7	51.4	17.9	6	49.0	10.1	9	67.4	15.2	3.5122	.05**
IV	4	45.0	8.5	3	66.7	33.5	6	62.2	12.6	1.5423	.26

\* Probability approaching significance at .05 level

\*\* Significant at .05 level

Note: Groups I,II were Thomas' 5 and 6 p.m. groups; III,IV  
McGlone's 5 and 6 p.m. groups.

TABLE 2

## Demographic and Treatment Variables by Group

	Group												F	P
	I			II			III			IV				
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD		
BEGWT	20	169.9	34.9	16	167.0	26.8	22	163.7	35.3	15	153.7	16.8	.8651	.46
BMI	20	27.6	5.6	16	26.9	4.1	22	26.5	5.6	15	24.6	3.0	1.0744	.36
SKNFLD	20	29.0		15	23.7		23	24.3		15	25.0		1.6090	.19
LOSSGL	20	37.7	22.6	16	32.4	15.0	22	30.0	18.9	15	24.1	9.1	1.7390	.17
AGE	20	35.3	11.0	16	31.3	10.7	23	32.0	9.7	15	25.2	5.8	3.1579	.03*
DMI	16	137.4	17.0	12	141.1	30.2	13	137.3	29.8	8	142.6	20.9	.1240	.94
TESTSC	20	55.0		75	61.3		22	57.3		13	57.9		.4575	.71
RETEST	10	23.8	12.4	8	23.4	10.1	10	11.3	7.2	5	16.0	13.7	2.9726	.05**
ATTEND	20	7.0	3.9	16	5.7	3.8	23	4.8	2.9	15	4.9	3.6	1.5244	.21
COMPL	20	9.1	4.7	16	8.5	5.1	23	7.1	4.2	15	6.8	5.0	.9925	.40
SEVWT	9	162.2	39.3	4	157.8	36.2	3	171.7	13.8	5	151.8	13.8	.2631	.85
SIXWT	15	164.9	33.1	8	156.3	25.4	12	166.6	34.3	6	146.2	14.6	.7664	.52
MARRIED		yes 13 no 7			yes 8 no 8			yes 14 no 9			yes 5 no 10		(1,N=40)=4.895, p<.002***	

Note: I & II, Thomas; III & IV, McGlone; I & IV, behavioral framing, II & III, vivid framing

\* Significant at <.05. Tukey test shows group IV significantly younger than group I, p<.05

\*\*Significant difference between groups

\*\*\* x computed by combining groups I & III, and groups II & IV

BEGWT = beginning weights

BMI = body mass index

SKNFLD = triceps skinfold measurement in arm

LOSSGL = weight loss goals in pounds

DMI = Dishman Motivation Inventory

TESTSC = weight control knowledge test scores

RETEST = seven week retest scores of weight control knowledge test

ATTEND = attendance at regular meetings

COMPL = compliance index

SEVWT = weight at seven week weigh-in

SIXWT = weight at six months weigh-in

Selection bias. As the four groups were not truly randomly constructed but were, in fact, semi-matched, it was deemed important to determine if they were free of selection bias. Accordingly, a number of variables were examined to see if any significant differences existed between the groups. These variables were, initial weights of the individuals, their ideal weights according to Cooper's (1982) height-weight tables, Body Mass Indices, skin-folds, weight-loss goals, six month weight goals, scores on the Dishman Motivation Inventory, and scores on the weight-information quiz. Comparisons between these variables were examined using analyses of variance (Table 2) and Pearson correlations. Composition of the groups according to student status and other demographic variables were undertaken using the chi-square test.

Body weight and weight-goal factors. A series of comparisons between the groups revealed no significant differences in group composition according to initial body weight, six-month weight goals, or weight-loss goals (Table 2). A significant correlation between weight loss goals and Cooper's (1982) recommended "ideal" weights was found ( $r = .44, p=.000$ ), suggesting that, on the average, subjects were hoping to achieve weight goals approximating "healthy" body-fat levels. The weight loss goals indicated by subjects were generally realistic. Assuming a maximum average weight loss of two pounds per week, only 12 of the

TABLE 3

Analysis of Variance of Age and  
Dishman Motivation Inventory  
by Participation of Subjects

<u>Participation</u>	<u>N</u>	<u>Age</u>		<u>F value</u>
		<u>Mean</u>	<u>SD</u>	
Non-participant	19	29.4	9.4	
Dropout	21	27.1	6.5	5.2386 (df 2,73) p=.0075*
Participant	34	35.2	11.1	

<u>Participation</u>	<u>N</u>	<u>DMI</u>		<u>F value</u>
		<u>Mean</u>	<u>SD</u>	
Non-participant	5	152.0	27.8	
Dropout	16	125.1	21.9	4.8341 (df 2,49) p=.0124*
Participant	28	144.9	22.1	

\* Tukey Honestly Significant Difference Test shows significant difference between Dropouts and Participants,  $p < .05$ .

74 subjects (16.2%) indicated goals above maximum average levels.

Knowledge and motivation factors. Scores on the Dishman Motivation Inventory (DMI) and the Weight Control Knowledge Test were examined by one way analyses of variance (Tables 1 & 2). Forty-nine of the original 74 subjects completed the DMI. Most of the missing scores were the result of individuals attending only the first session, then leaving the program prior to testing. Only five of the 19 subjects who attended two or less meetings took the test. Their scores are included. The remaining forty-four scores were obtained from participants and dropouts. Thus the DMI scores include 80% of the individuals who participated beyond two meetings. Differences, mentioned previously, between DMI scores of registrants, participants, and dropouts are discussed below in the Discussion section.

The mean initial DMI scores for the two 5 o'clock groups were both 137. Those for the 6 o'clock groups were 141 and 143. These differences were not statistically significant.

There was no statistically significant difference between the initial scores of the four groups on the weight control knowledge test. This test was completed by 70 of the 74 subjects. Analysis for the groups was based on 70 subjects tested (Table 3).

Age. The demographic variables of age, marital status, and employment were examined. Statistically significant differences were found between groups in all these categories. Mean ages of all subjects ranged from 35.3 years in group I to 25.2 years in group IV (Table 2). Subjects in group IV averaged 6 years younger than the next youngest group. One way analysis of variance of age reveals a significant difference,  $F(3,74) = 3.158, p = .03$ , between the groups. A Tukey Honestly Significant Difference test revealed that the ages of group IV participants were significantly less than those of group I,  $p > .05$ . Removal of age data for registrants, who failed to attend more than two sessions, does not significantly change mean group ages which then become 36.1, 30.1, 32, and 23.8 respectively.

It appears that older subjects chose the 5 o'clock groups. Younger women tended to fill the 6 o'clock groups. Possible reasons for this "sorting" process, and relationships to marital status and employment, are discussed below.

Employment. Subjects were separated into categories of "student" and "other." The "other" category was created by adding 32 employees of Virginia Tech to 12 subjects who worked elsewhere or listed themselves as housewives. The "student" category of 30 subjects included 15 graduate students and 15 undergraduates.

A greater proportion of students attended the 6 o'clock sessions than the 5 o'clock sessions. Conversely, a greater proportion of Tech employees and housewives attended the 5 o'clock than the 6 o'clock sessions. The different proportions of students and "others" in the 5 and 6 o'clock sessions was significant,  $\chi^2(1, N=74) = 20.378$ , at a probability of  $<.001$ . Proportions of employment categories were not significantly different between the two framing categories.

Marital status. The 5 p.m. groups had higher proportions of married subjects than the 6 p.m. groups (Table 2). This difference produced a significant chi-square value,  $\chi^2(1, N=74) = 4.895$ , which was significant at the .002 level. The difference in percentage of married subjects between the Thursday 5 and 6 o'clock groups was highly significant,  $\chi^2(1, N=37) = 10.0625$ ,  $p <.001$ . No significant difference was found between the two Tuesday groups, although the 6 p.m. group only had 50% marrieds versus 65% in the 5 p.m. group. The proportions of marrieds versus unmarrieds between the two framing groups were virtually identical, 51% in the behavioral groups, 56% in the vividly framed groups, yielding no significant differences.

#### Results of the experimental manipulations

Weight loss. All subjects were weighed during the group meetings except when the six month weight loss data were obtained. Prior to the meeting, weight and other data

were obtained by mail or phone. Subjects who attended this final meeting were also weighed, so that self-reported and observed weights were recorded for these individuals. The mean self-reported weight was two pounds less than mean observed weight at the meeting. All self reported weights except one were lower than observed, the difference ranging from 0 to 4 pounds. A Pearson correlation of  $r = .99$  was obtained for the 12 pairs of weights thus obtained, indicating that self reported weights were reliable.

The mean beginning weight for the 73 (of 74) subjects who were weighed at the beginning of the program was 164.05 pounds (Table 1). Relatively few subjects were present at the seven week weigh-in, only 21 (38%) of the 55 participants (original 74 less the non-participants), because of final examinations and the ending of the spring quarter. The mean beginning weight for these 21 subjects was 165.8 pounds. By the weigh-in they had lost an average of 5.4 pounds each, for a group mean weight of 160.2 pounds. This loss was statistically significant,  $t(20) = 3.71$ ,  $p = .0005$ .

The control group weighed significantly less than the experimental group at seven weeks,  $t(15) = 1.83$ ,  $p = .044$ . Mean weight loss for the control subjects was 1.6 pounds with a range of +5 pounds to -5.25 pounds. There was no significant difference between controls and experimental study subjects in attainment of weight goals

(Weight Reduction Quotient).

The control group, unfortunately, was not a true control, as 4 of the 6 members began weight reduction programs during the "no treatment" period. Wilson (1978) claims there are sufficient data to show that no-treatment control groups are neither necessary nor sufficient, pleading instead for nonspecific treatment groups. Apparently the promise of a weight control workshop was not sufficient "treatment" to prevent self-initiated weight control. The two control subjects who did not begin weight control activities lost 0.5 and 0.0 pounds respectively.

At six months, weights were obtained for a larger group of 40 participants. This group had a mean beginning weight of 167.4 pounds and a six month mean weight of 161.7 pounds. Again, this difference was statistically significant,  $t(39) = 3.66$ ,  $p = .0005$ . This rather small weight loss coincides with the fact that some subjects who attended regularly lost little weight or even gained weight. Conversely, "dropouts," did not necessarily cease their weight control behaviors after leaving the group. Several reported by mail that they were continuing to follow the program. One who appeared for the six month weigh-in had lost 20 pounds, from 173 to 153 pounds, attaining 49% of her weight-loss goal. Regardless of attendance, some individuals were successful at losing

weight, others were not. Such differences in weight loss are discussed below.

Attainment of weight goals. Most applicants to this program were accepted into the study regardless of how "overweight" they were. Body Mass Indices (BMI) suggest that fourteen subjects were not "overweight," nineteen (26%) were 1% to 10% overweight, and the remaining forty-one (65%) were 10% to more than 40% overweight (Table 4). Since measures of absolute weight loss may be particularly misleading in a study incorporating subjects with such a wide range of weights, weight reduction quotients (WRQ), target weight loss goals divided by actual weight loss, have also been used in this study. These appear to provide more meaningful information than actual pounds lost.

Weight reduction quotients were calculated for seven week (short-term) and six month (long-term) weight loss. Both short and long term goal attainment (increases in WRQs) were highly significant,  $p < .001$ . Differences between seven week and six month WRQs were not significant (Table 5).

Preparatory to collapsing data across framing or therapists, it was necessary to determine that there were no differences in WRQ'S between groups. An analysis of variance of WRQs by groups I through IV showed there were no significant differences between groups at seven weeks,

TABLE 4

Analysis of Variance of  
Weight-Reduction Quotients (WRQ)  
at Seven Weeks and Six Months

	Groups								F value (ANOVA) Chi-square (K-W) ANOVA
	<u>I</u>		<u>II</u>		<u>III</u>		<u>IV</u>		
	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	<u>N</u>	<u>Mean</u>	
7 wk WRQ	12	7.58	8	10.25	7	15.00	6	22.33	F(3,29)=1.21, p=.32 x <sup>2</sup> (3, n=33)=3.635, p=.30
6 mo WRQ	15	11.6**	8	16.13	13	11.85**	6	51.5**	F(3,38)=3.14, p=.0362* x <sup>2</sup> (3, n=42)=5.01, p=.17

\* Significant difference between groups, p<.05

\*\* Group IV significantly greater than Groups I and III, p<.05

TABLE 5

Significance of Increases in Weight  
Reduction Quotients (Weight Goal Attainment)  
at Seven Weeks and Six Months

<u>WRQ Changes</u>	<u>Group</u>	<u>T Value</u>	<u>Significance</u>
Significance of change from beginning of program to 7 weeks	I	t(12)=1.8	p <.05*
	II	t(8)=1.3	p >.10
	III	t(7)=2.7	p <.025*
	IV	t(6)=4.3	p <.005*
Significance of change from 7 weeks to 6 months	I	t(15)=.58	p >.25
	II	t(8)=.94	p >.19
	III	t(13)=.39	p >.30
	IV	t(6)=2.19	p >.05
Significance of change from beginning of program to 6 months	I	t(15)=1.8	p <.05*
	II	t(8)=1.3	p >.10
	III	t(13)=1.9	p <.05*
	IV	t(6)=3.01	p <.025*

Significance of goal attainment by all groups combined:

At seven weeks: t(31)=4.39, p <.001\*

From seven weeks to six months: t(29)=1.31, p >.2

At six months: t(41) = 3.82, p <.001\*

\*Significant difference between groups, p <.05

$F(3,29) = 1.21, p = .32$ . A Kruskal-Wallis Non-parametric Analysis of Variance, computed for reasons outlined below, produced a similar non-significant result,  $X^2(3,N=33) = 3.635, p = .30$  (Table 4).

Analysis of variance of six month WRQs by group yielded a significant difference between groups,  $F(3,38) = 3.14, p = .036$ . A Tukey Honestly Significant Difference Test revealed that group IV, a 6 o'clock behaviorally framed group, was significantly different from groups I (behaviorally framed 5 o'clock group) and group III (vividly framed 5 o'clock group),  $p < .05$  (Table 4).

Examination of the six month WRQ data reveals that two individuals in group IV attained 100% of their goals, losing 33 and 38 pounds respectively. These two individuals appear as outliers suggesting that the data be examined by non-parametric methods. Accordingly, both seven week and six month WRQ data were examined by a Kruskal-Wallis Non-parametric Analysis of Variance. Neither short term nor long term WRQs showed significant differences between groups when examined non-parametrically. Results for the six month WRQ data,  $X^2(3,N=42) = 5.01, p = .17$ , indicated that significance attained using a parametric ANOVA was an artifact of skewed data. With no significant differences between WRGs of the four groups the data were examined for therapist and framing effects.

Therapist effects. Examination of weight goal attainment for therapist effects was undertaken by collapsing both seven week and six month data across the framing variable and conducting a one-way ANOVA by therapist for each data set. Neither short term nor long term WRQs showed significant therapist effects when thus examined. Mann-Whitney U-tests of the data similarly yielded non-significant results, although McGlone's groups showed a near significant trend toward greater weight loss at seven weeks,  $U = 86.5$ ,  $p = .054$  (Table 6).

Framing effects. With no significant therapist effect indicated, examination of the effects of the verbal framing variable was undertaken. Seven week and six month Weight Reduction Quotients were collapsed across therapists and examined by one-way ANOVAs. No significant differences were found in analyses of variance of either short or long term progress toward weight goals by framing variable. Seven week WRQs by framing yielded a non-significant F value of  $F(1,31) = .000$ ,  $p = .99$ .

Six month WRQs yielded similar results,  $F(1,40) = .99$ ,  $p = .3265$ . Mann-Whitney U-tests also produced non-significant results (Table 6).

Predictors of weight loss. As neither framing nor therapist differences were predictive of attainment of weight loss goals, other variables were examined in a regression equation for their predictive potential.

TABLE 6

Analysis of Variance of  
Weight Reduction Quotients (Weight Goal  
Attainment) by Therapist and Framing

WRQ	<u>Therapist</u>						F Value (ANOVA) U Value (M-W ANOVA)+
	<u>Thomas</u>			<u>McGlone</u>			
	N	Mean	SD	N	Mean	SD	
7 wk	20	8.7	17.1	13	18.4	13.7	F(1,31)=2.96, p=.095 U = 86.5, p = .054*
6 mo	23	13.2	27.9	19	24.4	34.3	F(1,40)=1.36, p=.250 U = 198.0, p = .302

Framing

WRQ	<u>Vivid</u>			<u>Behavioral</u>			F Value (ANOVA) U VALUE (M-W ANOVA)+
	N	Mean	SD	N	Mean	SD	
7 wk	15	12.5	18.8	18	12.5	14.6	F(1,21)=.000, p=.995 U = 133, p = .302
6 mo	21	13.5	26.9	21	23.0	34.7	F(1,40)=.987, p=.327 U = 182.5, p = .167

+One-tailed probability

\*trend, near significance

Stepwise multiple regressions with and without outlier data were performed for seven week WRQs by beginning weights, weight loss goals, DMI scores, weight control knowledge test scores, age, and seven week attendance. Excluding the one outlier weighed at seven weeks, none of the above variables entered the regression equation. With the outlier data included (WRQ = .35), weight control knowledge test scores produced significant beta values. The regression equation resulted in an overall  $R$  of .148,  $F = 4.49$ ,  $p = .04$ , and a test score Beta value of .384,  $p = .044$ . A second pair of stepwise multiple regressions were conducted for six month WRQs by beginning weight, weight loss goals, seven week WRQs, BMI scores, age, compliance indices, attendance, weight control knowledge test scores, and increase in weight control knowledge test scores. With the two outliers removed, only seven week WRQs attained significance, producing an  $R$  of .205,  $F = 5.428$ ,  $p = .030$ , and a Beta value for seven week WRQ of .453,  $p = .03$ . When the two 1.00 WRQ scores of the outliers were included in the regression equation, age and test scores remained in the equation, resulting in an  $R$  value of .688 ( $F = 9.438$ ,  $p = .001$ ). Beta values for age and test scores were, respectively,  $-.48$ ,  $p = .006$ , and  $.46$ ,  $p = .008$ .

Because of the outliers, clarification of regression outcomes was undertaken using a two by two chi-square

analysis and Goodman and Kruskal's (1954) lambda, a non-parametric index of predictive association (Reynolds, 1977, Hays, 1981). The results of these statistics are considered below and in the Discussion section.

Age as a predictor. Age, test scores, and WRQs were converted to category data and lambda was computed for WRQ by age and by test scores (Table 7). Age was a clear predictor of weight loss. Subject ages of less than 30 years predicted that half the subjects would attain 40% to 100% of weight goals. Base rate of this level of attainment for 43 subjects of unselected ages weighed at six months was only 28%. Older subjects did not attain base rates. Only 13% and 23% of subjects 30-39 years and older than 40 years respectively, achieved 40% to 100% of their weight goals. The lambda of .42 indicates that, for a subject of any age, 42% predictive improvement over base rate can be made by taking age into consideration.

Test scores as predictors. Scores of weight control knowledge were also predictive of weight goal attainment, with lowest scores (0-40) predicting the highest percentage, 33%, of individuals attaining 40% to 100% of their weight goals. The lambda of .39 obtained from this computation indicates that predictions about attainment of weight goals are improved by 39% when test scores are taken into consideration (Table 7). Categories were then re-ordered into high and low scorers, using 55% as a

TABLE 7

Index of Predictive Association  
for Age and Test Scores

	<u>Age</u>			
	<u>&lt;30</u>	<u>30-39</u>	<u>&gt;40</u>	<u>N</u>
WRQ <.20	n=5	n=10	n=8	N=23
WRQ .20-.39	n=2	n=4	n=2	N=8
WRQ >.40	n=7	n=2	n=3	N=12
	N=14	N=16	N=13	Total=43

$$\underline{\text{Lambda}} = 7+10+8-12/43-12 = .42$$

	<u>Test Scores</u>			
	<u>&lt;40</u>	<u>41-60</u>	<u>&gt;61</u>	<u>N</u>
WRQ <.20	n=5	n=8	n=10	N=23
WRQ .20-.39	n=1	n=3	n=4	N=8
WRQ >.40	n=3	n=4	n=4	N=11
	N=9	N=15	N=18	Total=42

$$\underline{\text{Lambda}} = 5+8+10-11/42-11 = .39$$

demarcation score, and high and low WRQ scores, using .20 as the mid-point criterion. A two by two chi-square analysis of these data produced a significant score,  $\chi^2(N=42,1) = 4, p < .05$ .

#### Remaining Outcome Measures

Attendance. Mean attendance was slightly higher for Thomas' subjects (groups I and II) than for McGlone's (groups III and IV), but the difference was not significant,  $F(1,73) = 3.4695, p = .67$ . Mean attendance for the two framing categories was virtually identical (Table 2).

Compliance. Examination of Compliance Indices revealed a similar trend. Compliance was slightly higher for Thomas than for McGlone. Again, no significant differences were found either for therapist or framing categories (Table 2).

Changes in weight control knowledge. Retesting subjects with a 15 question test of weight control knowledge was conducted in the seventh week of the program. Thirty-three subjects completed the test at this time. One earned a score identical to her first test score while the other thirty-two showed score increases ranging from six to forty percentage points. The mean percentage point increase was 19 points, the median was 16 points. The mean point increase for Thomas' subjects, 24, was approximately twice that of McGlone's subjects. A

two-way analysis of variance with therapist and framing as factors reflects this difference in a significant main therapist effect,  $F(1,69) = 7.143$ ,  $p = .012$ . Neither framing nor the interaction between framing and therapist yielded significance. A non significant correlation ( $r = -.19$ ) was obtained when absolute test score increases were correlated with six month Weight Reduction Quotients. Correlation of initial test scores similarly yielded a non-significant value,  $r = .12$ . This suggests that increased knowledge did not assist subjects to lose weight. Similar, paradoxical, findings occurred when attendance and compliance with homework assignments were examined relative to weight loss. These will be considered further in the Discussion section.

#### Summary of Results

Seventy-four subjects registered for this weight control program. Initial attrition of 19 "non-participants" during the first two meetings was not significantly correlated with demographic or treatment variables. The twenty-one of the remaining 55 subjects who dropped out prior to the seventh meeting were found to be significantly younger than the 34 "participants" who did attend meetings beyond the sixth. Sixteen of the 21 dropouts who took the Dishman Motivation Inventory, scored significantly lower than the 28 participants for whom scores were available.

Subjects were assigned to four groups, two behaviorally framed and two vividly framed. Two therapists, Thomas and McGlone, each conducted one behaviorally framed group and one vividly framed group. Comparisons between the four groups showed no significant differences in initial weight or six month weight reduction goals. Subjects' weight reduction goals correlated moderately well with Cooper's (1982) recommended optimal weights, suggesting that subjects' goals were close to reasonably "healthy" body fat levels. Approximately 84% of the 74 initial subjects indicated realistic weight goals which required weight loss rates of 2 pounds or less per week.

There were no significant differences between groups in Dishman Motivation Inventory scores or in scores on a 15 question test of weight control knowledge. Differences were found, however, in age and employment between the 5 and 6 o'clock groups. Mean ages of individuals in the two 6 o'clock groups were less than the mean ages of the two 5 o'clock groups. Group IV, a 6 o'clock behaviorally framed group, had significantly younger subjects than the subjects in the behaviorally framed 5 o'clock group. Significantly more students and unmarried individuals were found in the 6 o'clock than the 5 o'clock. These data show that older, married, working women tended to fill the 5 o'clock groups, while younger, single, students tended to fill the 6

o'clock groups.

Mean weight loss was statistically significant, though not clinically significant for many subjects, at seven week and six month weigh-ins. Mean weight loss for the 21 subjects weighed at seven weeks was only 5.4 pounds. At six months, mean weight loss for 40 subjects was only 5.5 pounds. Similarly, achievement of weight loss goals (Weight Reduction Quotients) averaged only 19.2%, a mean loss of approximately 6 pounds of the mean 30 pound loss goal.

No significant framing or therapist effects were found when WRQ data were examined. Analysis by stepwise multiple regression revealed, however, that age and weight control knowledge test scores were predictive of weight loss. Non-parametric analysis using two by two chi-square analysis and Goodman and Kruskal's Index of Predictive Association suggested that approximately 40% improvement in predictive ability, over base rates, could be obtained by taking age and test scores into consideration.

Examination of other outcome measures showed no significant differences between attendance or compliance by therapist. A significant therapist effect was found in increases in weight control knowledge test scores upon retesting. Although Thomas' groups achieved significantly greater score increases than McGlone's this difference was not significantly correlated with six month attainment of

weight goals.

## DISCUSSION

The purpose of the present study was to examine the effects of two verbal framing styles, personal-vivid, and impersonal-behavioral, on participation and outcome variables of a behavioral weight control program. Female subjects, mostly students or employees at Virginia Tech, were recruited by advertisement of a six month weight control program. Of the seventy-four subjects who began the program, fifty-five continued as participants while nineteen failed to participate. Two therapists each conducted two groups, one of each framing type. Meetings were held weekly for the first seven weeks, bi-weekly for two more meetings, then monthly. Major variables of interest included measures derived from actual weight loss, attendance and degree of participation in the program activities, and knowledge gained about weight control.

### Verbal Framing and Weight Loss

The main hypothesis, that subjects in the vividly framed group would show significantly greater positive changes and behaviors, and that greater weight loss would occur, was not borne out. Initial examination of the data however, did show one group, group IV, to have made significantly more progress toward weight loss goals at six months than groups I and III. Thus subjects in group IV, a behaviorally framed group, appeared to come significantly closer to achieving weight loss goals than one of the

behaviorally framed groups and one of the vividly framed groups. It was noted that the subjects in this group also had the youngest mean age and the lightest beginning weights.

A non-parametric analysis of variance, employed to control for outliers in group IV, failed to produce a significant  $F$  value. As the significance of the group IV WQRs appeared to be an artifact of the outliers, WQRs were collapsed across framing and examined for significant therapist effects, then collapsed across therapists and examined for framing effects. No significant effects were found for either framing or therapist variables.

The lack of effect from the framing variable is difficult to explain in view of the successful persuasive effect of vivid information over base-rate information in other studies. One might argue that the studies carried out by Nisbett, Borgida, and others used college students and cannot generalize to other populations, but at least one other controlled study, an unpublished one by Cialdini & Carpenter (Yates & Aronson, 1983) reports that "personal-vivid" framing was more successful than an alternative sales technique in selling cable TV. It may be concluded that either the framing variable presented in this study was not powerful enough, that other variables confounded the effects of framing, or that vivid framing is relatively ineffective in changing "addictive" behaviors

such as eating.

### Predictors of weight loss

Age and knowledge. In order to determine what variables might predict weight loss in this study attention was directed to the individuals and groups showing greatest weight goal attainment. As described above, group IV showed significant goal attainment when examined with parametric statistics. Review of the data revealed that group I, with a mean age of 35.3, showed the least progress toward six month weight goals. Groups II and II, with mean ages of 31.25 and 32.04, made intermediate progress, and group IV the most. A modest, but significant negative correlation occurred between age and six month progress toward weight goals,  $r = -.3366$ ,  $p = .010$ . This suggested that the older participants tended to be less able to lose weight, perhaps because of being more "chronically" overfat. An alternative explanation might be that the older subjects had participated in more weight control programs and were inclined to "coast" along, while younger subjects responded to assignments because they were novel to them. No measures were taken, however, of the number of weight control programs subjects had participated in in the past.

Stepwise multiple regressions, with seven week and six month WRQ as the dependent variable, were carried out in order to determine what variables might predict weight goal

attainment. As was expected, age remained in the equation for the six month WRQs. Weight control knowledge test scores also remained in the regression equations for both seven week and six month WRQs. While it was not surprising that age remained as a significant predictor of the WRQ scores, the appearance of weight control knowledge test scores was unexpected.

Weight control knowledge scores correlated non-significantly with six month WRQ, and initially, did not appear useful in predicting weight goal attainment. Their significance in the regressions, however, prompted further examination of the data. Conversion of test scores and WRQs to categories permitted computation of a Goodman and Kruskal Index of Predictive Association. The index of association of .39 indicated that approximately a 40% improvement in prediction of weight loss could be made over base rates by taking test scores into consideration. A similar predictive level was determined for age. Examination of the Index matrix (Table 7) revealed that low test scores were predictive of those who attained WRQ scores of more than .40. Conversely, high test scores were the worst predictors for this group, with only 22% of the high scorers being in the high attainment category.

High test scores were predictive of subjects attaining WRQs of less than .40. Only 67% of the low score subjects attained low WRQs, while 78% of the high test score

subjects attained low WRQs. It appeared, from examination of the data, that subjects with low test scores tended to attain more of their weight loss goal, while subjects with higher test scores tended to attain less of their loss goal. A two by two chi-square analysis of high and low test scores by high and low WRQs supports this observation ( $p < .05$ ).

The multiple regression and subsequent analyses support the hypothesis that older, more chronically overweight women, although they know more about weight control, are likely to remain overweight. On the other hand, younger women, who have been overweight for a shorter time and who know less about weight control, are likely to lose weight.

It should be stressed that the above predictors may be specific to the population studied. Predictors of successful weight management have been described by several authors, and include spouse participation, locus of control, weight at beginning of treatment, aggressiveness, marital status, self control, trust, age of onset of obesity, and parental weight (in the case of obese children). Such predictors must be treated with caution, however, for they may interact among themselves and with the specific intervention being used (Bolocofsky, Coulthard-Morris, & Spinler, 1984; Epstein, Wing, Koeske & Valoski, 1986).

### Compliance

Attendance as a dependant variable was considered both separately and combined with homework tasks as a compliance coefficient. There were no significant differences either in attendance or compliance between therapists or framing styles. Nor were there any significant interaction effects. Contrary to the negative correlation between approach to weight loss goals and age, there were weak, but significant positive correlations between attendance and age,  $r=.2654$ ,  $p=.013$ , and compliance coefficients and age,  $r=.2102$ ,  $p=.036$ . Thus there was a tendency for older participants to attend more regularly and to carry out assignments and homework more often than younger participants. On the other hand, these behaviors did not appear to give older participants an advantage in attaining their target weights. Attendance was not related to outcome.

When subjects were actually monitored to see if they had completed complex tasks their records were not good. Only eight subjects made a total of ten appearances at two optional Saturday walks. Two of these subjects were among three who were seen exercise walking at other times during the six month program. These three were the only ones seen during approximately 30 periodic checks of the drill field and Blacksburg exercise trail. All three still exercise, one year after the end of the program.

Based on self report, it appeared that few subjects were actually carrying out the required amount of exercise. Those who did, for example the three subjects above and seven or eight others, appeared to have had past experience with exercise, and were enthusiastic about it. At least four women participated several times a week in aerobic dance. One taught an exercise and stretching class and another attended her class. One walked regularly. Another was involved in vigorous lifestyle exercise.

Three of the women who exercised regularly lost 94 pounds between them. In retrospect, it appeared that subjects could be divided into those who, historically, had enjoyed exercise and those who do not enjoy exercise and did not appear able or willing to change during the six month study period.

#### Attrition and self selection

Twenty-seven years ago, Stunkard and McLaren-Hume (1959), pointed out that most people who enter "treatment" for obesity drop out. In a survey of the literature, they concluded that the attrition rate for outpatients being treated for obesity ranges from 20 to 80%. Their figures relate primarily to carefully chosen experimental groups, and represent optimal dropout figures. Hall and Hall (1974), surveying outcome in behavioral treatment of obesity, listed 19 research studies published between the

years 1967 and 1973 in which dropout rates ranged from 0 to 83% (median dropout of 10%, mean dropout 16%) Treatment periods for these studies ranged from 6 to 18 weeks.

Interestingly, Black, Coe, Friesen & Wurzmann (1984) report much better results from a "minimal" program which involved only a single meeting followed by regular mail-outs. Some investigators (for example Hagen, 1974 and Wollersheim, 1970 cited in Franzini and Grimes, 1981) appear to have had good results pre-screening subjects and including only those who were "maximally motivated."

Alternatively, a form of screening or self selection of subjects may be an inadvertant artifact of any selection process. For example, Foreyt, Mitchel, Graner, Gee, Scott, and Gotto (1982) studied 648 patients at a hospital who were required to have complete physical examinations and written permission from their personal physicians prior to participation. What "screening" effect this procedure had on subjects can only be surmized, yet the dropout rate was approximately 20%.

Dishman, Ickes, and Morgan (1980) suggest that the dropout phenomenon occurs in many "voluntary" settings, citing 7 studies which report attendance rates of only 40 to 65% in adult fitness programs. They found that nearly 50% of the variance in exercise adherance could be accounted for by levels of self motivation as given by a self motivation inventory. It was hoped that positive

correlations might be found between the DMI and variables in this study, particularly in view of the exercise component. Initially no significant correlations were found between DMI scores and attendance, compliance, or progress toward weight goals. An analysis of variance of DMI scores of dropouts and participants, however, revealed a significant difference between the two, the mean score of participants being 20 points higher. Lower DMI scores were not found in the non-participants, who failed to attend more than two sessions. These data suggest that the DMI might be useful in predicting dropout in weight control groups, particularly those with exercise components.

Variation in attrition rates may be due to any of a large number of variables including those introduced by screening, therapist variables, program variables, historical variables, vagaries of climate, subject variables and interactions, methods of defining "dropout," and a plethora of other factors. The present study suffered a high dropout at the end of the spring quarter when students and others left town for vacations. It appeared that further attrition, or at least poor attendance, was related to the longer periods of time between meetings during the last four months of the study.

Unselected weight groups, such as commercial groups,

tend to have much higher attrition than relatively homogenous experimental groups. For example, Garb and Stunkard (1974), studying TOPS (Take Off Pounds Sensibly) chapters in Philadelphia, found that 47% of TOPS members dropped out in the first year and 70% within two years. One might hypothesize that some dropouts occur as a result of subjects prematurely attaining their weight loss goal. In the TOPS groups studied, however, the dropouts had not achieved significant weight loss.

The present study deals with an unselected group presumably similar to commercial groups. Dropouts were considered those subjects who failed to attend the seventh week meeting or any subsequent meetings. By this definition the average drop out rate of 38%, though high, was not atypical of either commercial or experimental groups. An important factor in the drop out rate was the exodus of students at the end of the school year. Of those who left for the summer, few returned for the last month of the study in the fall.

Considering framing, therapist, and time variables alone, differential attrition may produce groups that are far from the randomized or semi-matched groups envisioned by experimenters. Such appears to have happened in this study. For example, Thomas had 6 non-participants who failed to continue, 11 dropouts, and 19 participants, a total of 36 subjects. McGlone had 13, 10 and 15, a total

of 38. The difference in attendance categories between therapists was significant at the .008 level. The higher percentage of McGlone's non-participants, was more than twice the percentage of Thomas, yet the percentages of dropouts and participants are quite similar. This finding suggests that subject self selection based on therapist effects may have occurred early in the program. That there was no similar significant difference between dropouts, registrants, and participants between the 5 and 6 o'clock groups reflects the fact that subjects were allowed to select the time that best suited them. One effect of time, however was a self selection of a significantly higher percentage of married women in the five o'clock groups. Presumably this resulted from the married women wanting to get home to interact with their families while the unmarried women were more free to stay away from home at the traditional meal time of 6 to 7 P.M.

It was thought that some idea of subjects' motivation might be inferred from the amount of time they declared they would be willing to spend on "weight control" each day. These data were retrieved from the Personal Information questionnaires (Appendix A) and were found to fall into four natural categories of 15-40 minutes, 60-120 minutes, "unlimited," and "did not answer the question." Since "unlimited" may have had different connotations for different individuals it was omitted from subsequent

analysis. When the remaining data were compared with participant and non-participant status, a pattern appeared. A greater percentage of those who failed to participate indicated they would be willing to spend an hour or more than participants, who indicated 30 minutes or did not answer the question more frequently. A chi-square analysis of the categories of responses of participants and non-participants was conducted and the responses were found to be significantly different,  $\chi^2 (2, N=31) = 7.394$ ,  $p=.025$ . This suggests that those who actually participated in the program tended to be more conservative in their self-predicted time commitment than those who discontinued after one or two meetings. It is tempting to speculate that those who participated had more realistic expectations of self and the program than those who discontinued. This idea was certainly not borne out, however, by the weight loss of the participants. Nor was there any correlation between weight-loss goals and attendance which might suggest that those with reasonable goals attended more often or dropped out less frequently than those with less reasonable goals.

Researchers uniformly consider dropout as undesirable. Since weight control, however, is not necessarily dependent upon perfect attendance in a weight program such misgivings may be without merit. Participants may obtain enough information and incentive in

just a few meetings to make dramatic changes in their body fat and related physiological and behavioral characteristics. This appears to have happened in McGlone's behaviorally framed group IV. Four women who were not able to attend the last three to four months of this program reported six month weight losses of 12, 13, 20, and 33 lbs representing 35, 49, 34, and 100% of their loss goals. Eleven other women who dropped out prior to the seventh week reported average weight loss of 4.7 lbs at six months for an average attainment of 14.3% of their loss goals. Six non-participants reported six month average weight loss of 4.5 lbs which represented 14.3% of their loss goal. Finally, five of the six subjects in the control group lost between .5 and 5.25 pounds at the 7 week weigh in. One gained five pounds. Their mean weight loss was 1.6 pounds. The one who gained and one who only lost .5 pounds were the only ones who were not engaged in some kind of weight loss program.

### Summary

It appears that subjects in this study responded to various self selection pressures including time and therapist effects. As a consequence the groups were not homogeneous or semi-matched, but tended to have older, married women in the 5 o'clock groups and younger, single women in the 6 o'clock groups. Subjects who came the closest to their weight goals were not necessarily those

who attended regularly or claimed to be carrying out the assignments. Rather the younger, initially lighter, women seemed, as a group, to make greater progress toward their weight goals. It appears, then, that chronicity may determine who will benefit from weight control programs. This hypothesis was supported by data from regression analysis and subsequent non-parametric statistics.

Cabanac (1985), discussing "pleasure" as a great motivator for action, presents data from animal experiments showing that rats were willing to endure significant discomfort to obtain palatable food. Extended to experiments with humans, an experiment involving "preferring for pleasure" suggested that human subjects tend towards maximization of pleasure also. Data from this study of framing variables and other studies of weight control suggest that the discomfort of obesity and its related health, social, and personal self image problems is overwhelmed by the pleasure of obesity-inducing behaviors. Specifically, physical inactivity and ingestion of high-fat, high-sugar, low-fiber foods may be more pleasurable than alternative weight control behaviors. The alternative to being overfat requires a difficult series of behavior changes which places the subject at odds with eating and leisure habits common to most people in this country. Most overfat individuals do not seem able to achieve the necessary behavioral changes

to maintain fat loss.

### Suggestions for Further Study

While many individuals seem to want to lose weight, their motives and capabilities may be quite different. Older people who have been overfat for many years may be more motivated by health reasons than by vanity. Such individuals may be helped to achieve significant health changes by simply eating better while not necessarily losing weight. Thus they may be spared the often impossible task (for them) of attaining target weights by prolonged diet and exercise programs.

Younger individuals who have been overfat only a few years, or who have a history of alternately losing and gaining weight, may be more receptive to the kind of diet-exercise program used in this study. Such individuals may lay the groundwork for a lifetime of careful eating and healthy exercise, thus avoiding entering into states of long-term, intractable, obesity.

One way of permitting a heterogenous group of subjects, such as entered this study, to achieve maximum individual benefit from a weight control program, might be to provide them a program with several different alternatives of goal attainment. One level or alternative of attainment could be designed to yield tangible goals with least possible effort, for example a lowered cholesterol level through reduced percentage of total and polysaturated dietary

fats. Other levels or alternatives might involve different goals and different degrees of difficulty. An analogy would be the belt system of karate or judo, in which specific requirements of students attach to specific colored belts and involve different classes.

The results of the present study suggest that patterns of response to weight control programs based on age, marital status, and past history of exercise and obesity might be useful in optimizing group treatment. Future study in weight control might profitably center around the identification of such response patterns and the development of multi-level programs to accomodate them. For example, based on this study, older, chronically overweight individuals might be expected to attend meetings regularly but require careful supervision and constant encouragement toward minimal, proximal goals. It might be realistic to help such individuals find goals with minimal actual weight loss. Younger subjects might respond best to a more vigorous program with more physical activity, fewer meetings, and more challenging weight loss goals.

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APPENDIX A

Name -----Date-----  
 Age-----Height-----Weight-----  
 Address -----Phone-----  
 Address where you can be reached in summer (if different from  
 above)-----Phone-----  
 I am a Tech student-----Live with (husband,boyfriend,etc.)-----  
 Employment-----Full or part time?-----  
 Friend in weight program you want to be in class with -----  
 In past month I have (1) gained, (2) lost, (3) stayed same weight.  
 I have been -----lbs "overweight" for the past -----years.  
 An "ideal" weight for me would be -----  
 I was at an ideal weight from age -----to age-----  
 MY GOAL IN THIS SIX MONTH PROGRAM WOULD BE TO REACH A WEIGHT OF -----.  
 This seems a realistic goal because -----  
 -----  
 I feel the reason for my weight "problem" is -----  
 -----  
 I would be willing to put -----minutes per day into weightk control.

Date-----Wt----	Date-----Wt-----	Date-----Wt----	Date-----Wt-----
Triceps-----	Triceps-----	Triceps-----	Triceps-----
Blood p.-----	Blood p.-----	Blood p.-----	Blood p.-----
Pulse-----	Pulse-----	Pulse-----	Pulse-----

Date-----Wt----	Date-----Wt-----	Date-----Wt----	Date-----Wt-----
Triceps-----	Triceps-----	Triceps-----	Triceps-----
Blood p.-----	Blood p.-----	Blood p.-----	Blood p.-----
Pulse-----	Pulse-----	Pulse-----	Pulse-----

Number-----Motivation Inventory-----  
 Test 1 -----Test 2-----Test 3-----

APPENDIX B

Read each of the following statements and write by each item the letter of the alternative which best describes how characteristic the statement is when applied to you. The alternatives are:

- a. extremely uncharacteristic of me
- b. somewhat uncharacteristic of me
- c. neither characteristic nor uncharacteristic of me
- d. somewhat characteristic of me
- e. extremely characteristic of me

Please be sure to answer every item and try to be as honest and accurate as possible in your responses. Your answers will be kept in the strictest confidence.

1. I'm not very good at committing myself to do things.
2. Whenever I get bored with projects I start, I drop them to do something else.
3. I can persevere at stressful tasks, even when they are physically tiring or painful.
4. If something gets to be too much of an effort to do, I'm likely to just forget it.
5. I'm really concerned about developing and maintaining self-discipline.
6. I'm good at keeping promises, especially the ones I make to myself.
7. I don't work any harder than I have to.
8. I seldom work to my full capacity.
9. I'm just not the goal-setting type.
10. When I take on a difficult job, I make a point of sticking with it until it's completed.
11. I'm willing to work for things I want as long as it's not a big hassle for me.
12. I have a lot of self-motivation.
13. I'm good at making decisions and standing by them.
14. I generally take the path of least resistance.
15. I get discouraged easily.
16. If I tell somebody I'll do something, you can depend on it being done.

Be sure to complete the items on the other side

17. I don't like to overextend myself.
18. I'm basically lazy.
19. I have a very hard-driving, aggressive personality.
20. I work harder than most of my friends.
21. I can persist in spite of pain or discomfort.
22. I like to set goals and work toward them.
23. Sometimes I push myself harder than I should.
24. I tend to be overly apathetic.
25. I seldom if ever let myself down.
26. I'm not very reliable.
27. I like to take on jobs that challenge me.
28. I change my mind about things quite easily.
29. I have a lot of will power.
30. I'm not likely to put myself out if I don't have to.
31. Things just don't matter much to me.
32. I avoid stressful situations.
33. I often work to the point of exhaustion.
34. I don't impose much structure on my activities.
35. I never force myself to do things I don't feel like doing.
36. It takes a lot to get me going.
37. Whenever I reach a goal, I set a higher one.
38. I can persist in spite of failure.
39. I have a strong desire to achieve.
40. I don't have much self-discipline.

## SELF-MOTIVATION INVENTORY

## Scoring Key

	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>		<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>e</u>
1.	5	4	3	2	1	21.	1	2	3	4	5
2.	5	4	3	2	1	22.	1	2	3	4	5
3.	1	2	3	4	5	23.	1	2	3	4	5
4.	5	4	3	2	1	24.	5	4	3	2	1
5.	1	2	3	4	5	25.	1	2	3	4	5
6.	1	2	3	4	5	26.	5	4	3	2	1
7.	5	4	3	2	1	27.	1	2	3	4	5
8.	5	4	3	2	1	28.	5	4	3	2	1
9.	5	4	3	2	1	29.	1	2	3	4	5
10.	1	2	3	4	5	30.	5	4	3	2	1
11.	5	4	3	2	1	31.	5	4	3	2	1
12.	1	2	3	4	5	32.	5	4	3	2	1
13.	1	2	3	4	5	33.	1	2	3	4	5
14.	5	4	3	2	1	34.	5	4	3	2	1
15.	5	4	3	2	1	35.	5	4	3	2	1
16.	1	2	3	4	5	36.	5	4	3	2	1
17.	5	4	3	2	1	37.	1	2	3	4	5
18.	5	4	3	2	1	38.	1	2	3	4	5
19.	1	2	3	4	5	39.	1	2	3	4	5
20.	1	2	3	4	5	40.	5	4	3	2	1

APPENDIX C

## WEIGHT CONTROL PREFERENCES

Your Name -----

1. In an IDEAL weight control program, how much time would you devote to weight control each day:

- 15 minutes
- 30 minutes
- 60 minutes
- 120 minutes
- Unlimited time

2. In an IDEAL program, would you prefer:

- Daily meetings
- Twice weekly meetings
- Once weekly meetings

3. Would you prefer a program in which:

- A strict diet and exercise program were given to you
- You devise your own diet-exercise programs

4. What would your goals be in this IDEAL program?

APPENDIX D

## FINAL WEIGHT CONTROL NEWS

The Virginia Tech weight control program which began in April ended this October. Converting the \$10 checks to a charitable contribution posed logistic difficulties, so we will either return or destroy all of them at this time. If you wish your check returned you may send a self addressed stamped envelope to Lowell P. Thomas, Psychology Department, Derring Hall, Virginia Tech, Blacksburg, Va. 24061. A few individuals paid \$10 cash. If you paid cash you may request a refund by note to the above address. Be sure to include an SASE for return of your cash deposit. Unclaimed cash deposits will be contributed to some charitable organization by the end of December.

IN ORDER FOR ME TO COMPLETE THE DATA COLLECTION FOR THIS PROGRAM I ASK IF YOU WILL PLEASE TAKE A MOMENT TO FILL OUT THE QUESTIONNAIRE BELOW AND RETURN IT IN THE ENCLOSED ENVELOPE. THANK YOU FOR YOUR PARTICIPATION AND GOOD LUCK IN THE FUTURE.

-----  
 YOUR NAME -----Date-----

1. In an IDEAL weight control program, how much time would you devote to weight control each day?

15 Minutes  
 30 Minutes  
 90 Minutes  
 120 Minutes  
 Unlimited time

2. In an IDEAL program, would you prefer:

Daily meetings  
 Twice weekly meetings  
 Once weekly meetings

3. Would you prefer a program in which:

A strict diet and exercise program were given to you  
 You devise your own diet-exercise program

4. What would your goals be in an IDEAL program?

5. Are you presently participating in a weight control program?

6. What is your present weight?

APPENDIX E

## WEIGHT CONTROL QUIZ

Indicate the BEST answer by circling a,b,c, or d.

1. Most Americans eat far too much: a. fat, b. protein, c. carbohydrate, d. fiber.
2. Interestingly, a typical hamburger : a. is a good balance of fat, protein, and carbohydrate, b. would be best for you without the bun, c. is nutritionally unbalanced, d. is nutritionally, the exception to most "fast foods."
3. Joan has heavy, "cellulite" padded thighs. Her best solution to the cellulite would be: a. a diet-exercise program, b. an intensive spot-reducing program of leg raises, c. an intensive spot-reducing program of multiple leg exercises, d. daily steam bath treatments.
4. Research shows: a. heavy adults are actually more active than slender adults, b. the quality of exercise you get in ordinary house work and shopping is equal to a formal exercise program in weight control benefit, c. exercise can only firm you up, not burn fat, d. heavy people often are not as physically active as slender people.
5. Thirty minutes of brisk walking four days a week: a. would burn exactly twice as much fat as fifteen minutes, b. would make you feel better, but would be useless for burning off fat, c. would be no better than thirty minutes in a sauna, d. might make the difference between a diet working and not working for you.
6. Studies show that heavy people: a. eat much more than slender people, b. eat somewhat more than slender people, c. often eat the same or less than slender people, d. have less will-power than slender people.
7. If you wanted your food calories to balance at 1/3 fat, 1/3 protein, and 1/3 carbohydrate, you'd have to: a. eat about half as much fat as protein or carbohydrate, b. eat twice as much fat as carbohydrate, c. eat four times as much protein as carbohydrate, d. eat equal amounts of the three.
8. Ten grams of fat: a. provides about 90 calories of energy, b. provides energy equal to ten grams of protein, c. provides more than enough daily calories of fat for an average 150 lb person, d. would weigh about 1/2 pound.
9. Many women today are interested in physical activity. It has been found that, for weight loss: a. any kind of physical activity can be used to burn off fatty tissue, b. as little as five minutes a day can cause you to lose weight, c. a bare minimum of 20-30 minutes of aerobic activity four times a week would be needed to produce a weight loss effect, d. a sauna or steam bath is actually more effective.

10. One medium boiled potato: a. would give you four times the calories of 25 potato chips, b. has fewer calories than 10 potato chips, c. has more than twice the cholesterol of an egg, d. could add 300 calories to an otherwise low calorie meal.
11. Starchy foods: a. should probably be a major part of the diet of every american, b. should be replaced by protein if you are serious about nutrition, c. should be replaced by fiber, d. are the cause of most weight problems.
12. The American College of Sports Medicine and the American Heart Institute recommend, a. a high protein diet, b. a 1,000 calorie diet with vitamin suppliments, c. cutting out all sweets and exercising, d. a combination of light diet and exercise.
13. Your metabolism: a. is permanently fixed at a set point, b. will change and require relatively less calories if you go on a diet, c. will change and require relatively less calories if you exercise, d. will actually cause you to burn fewer calories when you exercise.
14. Women should probably not have more than: a. 4% body fat, b. 8% body fat, c. 12% body fat, d. 25% body fat.
15. There are psychological reasons why weight loss is so hard. Chief among these is: a. lack of will power, b. the wrong goals, c. the stimulation of available food, d. the pain of exercise.

APPENDIX F

## FIRST WEEK

EATING BETTER: This week we will examine what you eat and how you can eat better. Most people don't really give much thought to what they eat. This week you can learn a great deal about how and what you are eating. Doing this will be simple. Just keep a list of everything you eat each day for three days. It is important that you write down EVERYTHING as you eat it, so carry a piece of paper and a pencil with you and jot down the time, what you are eating, and the amount. Be as specific as you can. Include all meals and even small snacks.

When you have transferred the above information to your daily food sheets you can use your food calorie charts and figure out the GRAMS of fats, carbohydrates, and proteins you have consumed. For example, a slice of raisin bread is 65 calories, a cup of skim milk is 90 calories, etc. Add all the calories to get your total calorie count for the day. THEN FIGURE THE GRAMS OF FAT, PROTEIN, AND CARBOHYDRATE SEPARATELY (for example, a slice of raisin bread has 2 grams of protein, 1 gram fat, 13 grams carbohydrate; and a glass of skim milk has 9 grams protein, no fat, and 12 grams carbohydrate. Add all the grams of fats, proteins, and carbohydrates for the day. If your day's food has a healthy balance, the grams of fats, proteins and carbohydrates should be as follows depending on your total calories for the day:

Calories 1500	Gms protein 45-56	fat 50	carb 206
1600	Gms protein 48-60	fat 53	carb 220
1700	Gms protein 51-64	fat 57	carb 234
1800	Gms protein 54-68	fat 60	carb 248
1900	Gms protein 57-72	fat 63	carb 261
2000	Gms protein 60-76	fat 67	carb 275
2100	Gms protein 63-80	fat 70	carb 289
2200	Gms protein 66-84	fat 73	carb 303
2300	Gms protein 69-89	fat 77	carb 316
2400	Gms protein 72-92	fat 80	carb 330
2500	Gms protein 75-96	fat 83	carb 344
2600	Gms protein 78-100	fat 87	carb 358

Now you know a great deal about the composition of the food you ate for the three days. Protein grams should be about the same as fat grams. Carbohydrate grams should be about four times fat grams. REMEMBER THAT MOST PEOPLE EAT TOO MUCH FAT AND SUGAR AND NOT ENOUGH COMPLEX CARBOHYDRATES. The next thing to do will be to see how you might have eaten better. First you need to decide if you need to reduce the total calories. If your weight is stable and you are regularly eating 2460 calories per day then that amount must be about right for you. If your total calorie intake seems high and you are gaining weight, you may be able to reduce it considerably just by eating better. For example, perhaps you are rather high in protein and fats.

By cutting down on meats and increasing complex carbohydrate calories you may be able to adjust the three food categories and lower total calories without decreasing the BULK of the food you eat. Work on improving the day's food intake. Concentrate on cutting down sugars and fats while including more complex carbohydrates such as potatoes, rice, pasta (spaghetti and noodles), beans, and whole grains. Remember that complex carbohydrate foods ALSO contain some protein! For example, instead of a doughnut for breakfast, have an extra piece of honey-bran toast, a complex carbohydrate and only about 95 calories compared to 125 for a doughnut. What is even better though, is that a doughnut has about 6 grams (55 calories) of fat while the bread has only about 1 gram (9 calories) of fat. Furthermore, a doughnut is loaded with sugar and has only about 8 calories of protein while the bread slice has 20 calories (5 grams) of protein and less sugar.

Go through your entire day's food in this fashion, cutting down fats and sugars. You may find that a lot of your fats are associated with red meats or with fried foods. You can get rid of these by substituting broiling and baking for frying, and by making red meat portions smaller. Remember, you can get a lot of protein from bread, potatoes, rice, and beans. Stir-frying or stews may allow you to use much smaller portions of red meat, so in writing out a new day's food list include ways of preparation. Also keep in mind that chicken and fish are lower in fats than red meats (but if they are fried they'll be LOADED with fat).

When you have re-worked your meals and snacks for three days you will have a pretty good idea of how to eat better. Bring in your ideas to the next group meeting. Remember to think both in terms of healthier kinds and proportions of foods AND healthier ways of preparing them.

**BEING MORE ACTIVE:** Most heavy adults are not as active as lighter people. Physical activity is TERRIBLY IMPORTANT for weight loss and a slender life style. We will discuss this further in a later meeting, but for now it is IMPORTANT that you begin some QUALITY physical activity IN ADDITION TO your everyday activities. One of the easiest and nicest ways to increase activity is by walking. Part two of this week's program will be walking for fifteen minutes each day for four days. It doesn't matter whether you walk four consecutive days or split them up. Be sure the walking is extra, that is walking IN ADDITION to the routine walking you normally do during the day. If you feel like walking longer, add five extra minutes, but don't overdo it. Let your body be the judge. This should be a restful walk, not a race. Don't attempt anything you wouldn't do in an ordinary walk during the day. Even this little bit of extra walking will burn extra calories. Furthermore, it will cause an increase in your metabolic rate which will burn EXTRA calories even after you quit walking for the day. Jot down the days you walked, how

long you walked, and, especially, your thoughts and feelings concerning the walking. Bring this with you to the next meeting.

#### GOALS FOR A HEALTHIER YOU

Your goal for this week will be to earn 400 points. Don't worry about how much weight you lose now. If you can earn 400 points this week THAT'S ALL YOU NEED TO DO! REMEMBER, THIS IS A LIFETIME PROGRAM. WE START SLOW, BUT WE KEEP GOING. Sounds something like a story about a turtle and a rabbit doesn't it. Keep that in mind!

1. First, eat exactly as you usually do for the next three days. Don't try to diet or cut back. Use your Daily Food Sheets to list everything you eat for these three days -- 100 points
2. Using the planning sheets provided with the Daily Food Sheets, analyze each day's food for grams of fat, protein, carbohydrates, and total calories -----100 points
3. Write out an improvement of each day's food list, getting rid of extra fats and sugars, and balancing proteins, fats, and carbohydrates with better foods. Jot down your general ideas on pg. 3 of the Daily Food Sheet handout -----100 points
4. Walk 15 minutes each day for any four days of the next week ---- 100 points

-----  
I earned the following points for the first week:

1.-----

2.-----

3.-----

4.-----

Total points -----

SIGNATURE-----

DAILY FOOD SHEET

SLIMMER, HEALTHIER, YOUR FIRST STEP TOWARD A SUCCESS

Yes, I want to eat better! Name-----Date-----

Time (indicate which meal or snack	Food item and amount (*estimate)	Grams Protein	Grams Fat	Grams* Carbohydrates
Total grams of:		Protein	Fat	Carbohydrates

Equals total calories of      × 4           × 9           × 4

-----  
 What should your grams of protein, fat, and carbohydrates be for your total calorie level? See next page, this handout.  
 -----

What do you need to do to eat better?

\*Use nutritive value handouts to figure grams of protein, etc.

PLANNING FOR A SLIM AND HEALTHY BODY

1. How much do you eat? (Use your 3 daily food charts.)

Day 1, calories-----  
 Day 2, calories-----  
 Day 3, calories-----

Average for 1 day (divide 3 day total by three) -----

2. If you have been staying the same weight or gaining recently you will need to eat MORE WISELY to lose fat. Chose one and circle it:

- I am eating over 3,000 calories a day. ADJUST by getting rid of 700 unhealthy calories.
- I am eating 2500 to 3000 calories a day. ADJUST by getting rid of 500 unhealthy calories a day.
- I am eating 1800 to 2500 calories a day. ADJUST by getting rid of 250 to 400 unhealthy calories a day.

Use these figures as GUIDELINES ONLY. Don't try to reduce food intake by TOO much. DON'T EAT LESS THAN 1500 to 1600 calories a day in any case! It will be much better to cut your food intake by too LITTLE than by too much, as you will see!

Write your proposed new calorie level here: I plan to begin eating \_\_\_\_\_ calories a day.

3. Figure how you can eat MORE and BETTER foods and still get rid of UNHEALTHY CALORIES!

Look at your Daily Food Charts. For the three days, what is your AVERAGE TOTAL CALORIES, Average intake of protein, fat, and carbohydrate?

Average total ---, Grams protein-----, Grams fat-----, Grams carbohydrate-----

You already determined fat, protein, and carbohydrate levels based your PRESENT food intake. Now, what are your recommended levels, based on your proposed NEW LOWER daily intake of calories?

RECOMMENDED DAILY LEVELS OF NUTRIENTS

Calories	1500	Gms protein	45-56	fat	50	carb	206
	1600	Gms protein	48-60	fat	53	carb	220
	1700	Gms protein	51-64	fat	57	carb	234
	1800	Gms protein	54-68	fat	60	carb	248
	1900	Gms protein	57-72	fat	63	carb	261
	2000	Gms protein	60-76	fat	67	carb	275
	2100	Gms protein	63-80	fat	70	carb	289
	2200	Gms protein	66-84	fat	73	carb	303
	2300	Gms protein	69-89	fat	77	carb	316
	2400	Gms protein	72-92	fat	80	carb	330
	2500	Gms protein	75-96	fat	83	carb	344
	2600	Gms protein	78-100	fat	87	carb	358

With your current eating habits:

Are you eating too much fat?-----

Are you eating too little carbohydrate?-----

Are you eating more protein than you need?-----

Most people in this country eat too much fat, not enough COMPLEX carbohydrate. Can you eat better? Look at your food lists.

Are you eating too many fatty snacks (chips, chocolate, dips)?-----

Are you eating too much fatty meat (ham, steak, hamburger, hotdogs)?-----

Are you eating too much salad dressing, oil, butter, fried foods, whole milk?-----

-----  
 You can jot down your ideas here for BETTER, MORE SOPHISTICATED EATING:

IF YOU HAVE GOTTEN THIS FAR YOU ARE WELL ON YOUR WAY TOWARD TOTAL SUCCESS IN THIS NEW SLIM, HEALTHY LIFESTYLE. This means you have a lot of the information you need to BE IN CONTROL of your body! Save this information. It will be the BASIS of a lot of the EXCITING STEPS you will be taking toward your FUTURE.

## SECOND WEEK

A reminder: Always bring ALL your program handouts to class with you. You will especially need the sheet with the tear-off point total form.

Review: Last week you began the program by keeping a list of everything you ate for three days. From this list you should have been able to use your handouts to figure out TOTAL CALORIES and CALORIES OF FAT, PROTEIN, AND CARBOHYDRATES. You were then asked to write out suggestions for improving those three days' meals and snacks. Finally, you were asked to walk 15 minutes a day for each of four days.

You should have rated yourself on each of those four tasks, awarding yourself up to 100 points for each task completed. Award partial points for partially completed tasks. For example, if you only kept track of one day's meals, give yourself 33 points instead of 100 for that goal. REMEMBER, EVEN THOUGH YOUR GOAL IN THIS PROGRAM MIGHT BE TO LOSE 30 POUNDS, THE ONLY WAY YOU WILL ACCOMPLISH THAT GOAL WILL BE BY SETTING AND KEEPING DAY TO DAY GOALS. WE ARE TRYING TO HELP YOU SET AND ACHIEVE THOSE DAY TO DAY GOALS. How much you achieve in this program will depend on your being willing to carry out the simple tasks that lead to the day to day goals.

This week: Let Mary G., 28 year old secretary, of Christiansburg, tell you about what she discovered in the first weeks of a weight program:

On weight: "I found out that in previous diets I'd been losing weight, but not fat. The diets I'd been on had caused me to dump a lot of water, BUT I WASN'T LOSING ANY FAT! Water weighs a lot, and I'd lose 7 to 10 pounds fairly easily, but then when I went off the diet I'd gain the water right back PLUS A LITTLE MORE EXTRA FAT! I'd always weigh MORE a couple months after dieting than when I started." (Mary discovered the "rebound" effect which diets often produce. They often produce rapid water loss which fools us into thinking we have lost a lot of fat.)

Mary's discovery about fat and food: "First of all, I learned that we all need a certain amount of food to function. If we eat more than that minimal amount we'll store it as FAT. What I had to do at first was cut down to below the minimal amount so I could LOSE fat. My weight was pretty stable (I wasn't gaining or losing), and I kept track of what I was eating for a couple weeks. Believe me, it was disgusting! Almost half the food I was eating was loaded with high calorie fat. No wonder I couldn't lose weight. Just by cutting down on fried foods, cutting OUT chips and (most) cookies, and changing my cooking style a little bit, I was able to drop 700 calories A DAY OFF MY DAILY INTAKE! For example, I eat a poached egg on toast (no butter) for breakfast instead of a scrambled egg and buttered toast. JUST THAT CHANGE DROPPED 80 CALORIES OF FAT FROM MY DAY'S INTAKE. Instead of eating a 300 calorie bag of potato chips (half fat calories) for an afternoon snack I now eat a 100

calorie banana (which has virtually no fat). Hey, there's 280 calories saved JUST IN THOSE TWO SIMPLE CHANGES! And you ought to see what happened to my calorie count when I began eating a little less meat and more fruit and vegetables! I concentrate on cutting down fat because it's real high in calories and because it's bad for my heart and arteries to get too much fat."

Sugar too: "But my other problem was sugar. I was drinking three to four cokes a day. That's about 150 calories each, and one 12 oz coke has about 8 teaspoons of sugar in it! One day I took eight teaspoons of sugar and dumped them into a cup just to see how much I was getting. Ugh! I've been drinking diet sodas ever since. If I can't get diet I just drink water."

Physical Activity is Critical: "Probably the most interesting thing I learned about losing weight is that I had to increase my physical activity to make the 700 calorie a day reduction work. We call this TURNING ON OUR FAT BURNERS. If I don't walk briskly (to the point where I sweat) four days a week for at least 25 or 30 minutes my metabolism just adjusts to my diet. In other words, my metabolism changes and I WON'T LOSE WEIGHT EVEN IF I EAT 700 CALORIES A DAY LESS! I love to walk the country roads around our house, but some of my friends do aerobic dance, yoga, ride a stationary bike or even jog. It did take me a while to get used to the idea that I need to work up a healthy sweat and be breathing a little hard while I walked, but that's the only way I can turn on my FAT BURNER! After the first few weeks I got used to it and enjoy the feeling now."

Living with a lower body weight: "I've changed my eating habits quite a bit, but I still can eat a LOT of food, just not so much rich, fatty or sugary foods. I think I can live with my new ways. I like the walking, and I even did a one mile fun-run last month. I was amazed at what good condition I was in, as I jogged the whole way and only stopped to walk once. I beat a lot of people, even some little boys who thought they were real hot-shots. When I lose 5 more pounds I'll be where I want to be and I'm going to be able to increase my food intake a little bit (so I don't keep losing weight). Best of all, I'm going to buy a leotard and begin ballet lessons again. I haven't done that since I was ten years old, and I loved it then, but I've just been too darn fat recently to think about squeezing into a leotard. Now I'm going to be able to have some fun with a second childhood. My husband is even going to put up a rail for me in our family room, so I'll be able to work out four or five days a week. Ballet will probably help keep me physically active enough to maintain my new, lower weight, and it if won't do the trick I'll just go back to the walking."

#### HOW MUCH SHOULD YOU EAT

Roughly, an active young woman (18-35) needs about 15 calories per pound of body weight per day. From age 35 to 55 these requirements drop about 1 calorie per pound per day. From 55 to 75 they drop another calorie (down to 13) per pound per day.

If your weight had been stable for a few weeks then your daily

calorie intake is matching your needs. If you cut your food intake by 250 to 500 calories per day AND increase your physical activity, you can lose 1/2 to 1 pound a week.

#### WHY YOU WILL WANT TO INCREASE PHYSICAL ACTIVITY

Dieters who cut their food intake by 1,000 calories per day DO NOT LOSE WEIGHT AT THE RATE THEY ARE EXPECTED TO. Instead their metabolism changes and they get by on less food. An increase in physical activity restores proper metabolism. You'll need 30 minutes a day four times a week. We are working toward that goal.

The secret of physical activity, then, is that it keeps your metabolic rate high, EVEN WHEN YOU ARE SLEEPING OR SITTING DOWN, and you will lose weight as you should according to your decrease in calories!

A suggestion: You can cut calories by halving your meat intake, by drinking skim milk instead of whole milk, by limiting cookies and other baked goods, and by substituting broiled and baked meats for fried. Make your snacks fresh fruit, the best you can buy. Increase COMPLEX CARBOHYDRATES, such as whole grain breads, rice, noodles, spaghetti, beans, and potatoes.

GOALS FOR THIS WEEK: To earn 400 points

1. Write down everything you eat for 2 days. Continue your analysis of your eating habits from last week. 100 points

2. Begin to use some of your ideas for better eating based on your analysis of your Daily Food Charts. Determine a calorie level for your weight loss program. Actually work out three sample days' meals and snacks which will be lower in total calories (assuming you need to lose weight), lower in fats and sugar and higher in complex carbohydrates. Bring copies of these in to class. 100 points

3. Looking for trouble spots. If you are overeating or eating too many fatty or sweet foods, write brief answers to the following questions. These will be discussed in class:

a. What are the cues to eat that you can change or avoid?

b. Where are the places that cause you problems, and how can you deal with them?

c. What are your problem times and how can you deal with them? 100 points

4. Walk for 15 minutes per day at 50% maximum heart rate each day for four days. Be sure to check your heart rate and try to keep it at 50% maximum. 100 points

The most points you can earn is 400. Indicate, beside each area, the number of points you have earned.

-----  
I earned the following points for the second week:

1.-----

2.-----

3.-----

4.-----

Total points -----

Signature-----

## KEEPING YOUR HEART RATE AT A SAFE AND HEALTHY LEVEL

In order for your walking to have a "fat burning" effect you need to keep your heart beat at a safe and healthy level. If you push too hard it will not be good for you. If you do not have a refreshing, brisk, walk, however, it will not have the desired effect of burning fat calories while you rest.

Here's how to determine the proper rate for you.

1. Practice taking your pulse by determining your resting pulse rate. Use several samples in order to be accurate. You can take your pulse at your wrist or by pushing LIGHTLY against your throat above a carotid artery. You will be asked to do this in class.
2. Figure your MAXIMUM heart rate by subtracting your age from 220 if you are a woman (half your age from 205 if you are a man). Thus a woman 50 years old would have a maximum heart rate of 170. See the chart below FOR WOMEN.
3. To figure your 50% or 60% rate just multiply your MAXIMUM rate by .50 or .60. For example, .60 times 170 equals 102. Thus, if you are a 50 year old woman wanting walk at a 60% rate, you would want to walk briskly enough to get your heart beating 102 beats per minute (but not more). A 30 year old woman would have a 60% rate of 114, and a 20 year old woman would have a rate of 120. See the chart below.

Age	Max h.r.	50% level	60% level	70% level
20	200	100	120	140
25	195	97	117	137
30	190	95	114	133
35	185	93	111	130
40	180	90	108	126
45	175	88	105	123
50	170	85	102	119
55	165	83	99	116
60	160	80	96	112
65	155	78	93	108

## EATING THE VERY BEST



hamburgers  
 hotdogs  
 all deep fried foods  
 frenchfries  
 fried chicken  
 ham  
 sausage  
 all red meat  
 whole milk  
 icecream  
 eggs  
 cheese  
 nuts  
 all chips  
 sour cream  
 all cookies  
 pies  
 pastries  
 doughnuts  
 lard  
 butter, oil  
 mayonnaise, oily dressings  
 chocolate



skim milk  
 chicken, skinned, white meat  
 fish (not fried)  
 clams, crab, oysters  
 shrimp, tuna in water  
 all beans, split peas  
 lentils  
 green vegetables  
 carrots, cauliflower  
 all squashes  
 potatoes (boiled or baked)  
 leafy vegetables  
 grains corn, oats, wheat)  
 melons  
 all fresh (or frozen) fruit  
 all fresh (or frozen) berries  
 macaroni, spaghetti, noodles  
 rice  
 low cal soft drinks  
 low cal salad dressings  
 raw fruits etc. as desserts  
 garden fresh vegetables  
 unsweetened fruit juices



## THIRD WEEK

## LEARNING TO EAT BETTER

Certain places, times, feelings, and their combinations may trigger old, unhealthy, eating habits. Sometimes we feel we just have to pig-out on something which may taste good, but will, in the long-run, make us fat. Betty R., of Blacksburg, handles these in this way:

"First I had to learn to RECOGNIZE the situations that caused me problems. I did this by keeping track of what I ate and the times and places when I was eating. I found I was eating far too much for 10 AM and 3 PM snacks because I was going to the doughnut shop then for "coffee." I used an AVOIDING trick to solve that problem. I just quit going! That was easy. I SUBSTITUTED fresh fruit for doughnuts, and I even quit drinking coffee (which, by the way, alleviated the breast cysts I had).

"Next, I found I was snacking as I prepared meals, you know, munching, tasting, eating a meal before I even sat down to eat. I just had to get a little tough on myself with that. I began to be real careful not to cook more than we could eat, and I formed the habit of just eating at the table, not while I was cooking.

"Another problem was the cookies and doughnuts that the kids always wanted. I was eating more of them than the kids were. Now I keep all that stuff in a big cookie jar labeled "kids." I put the jar under the counter in a cupboard I seldom go in. The kids have to put it back, so it stays out of sight. By putting this stuff and other tempting foods OUT OF SIGHT I am able to avoid constant temptation. If we have a big meal or dessert I immediately freeze the left overs so I'm not tempted to snack on them. Hey, it's easy. OUT OF SIGHT, OUT OF MIND.

"By figuring out the week's meals ahead of time I always have a real complete shopping list when I go off to the store. And you know those problem aisles? Like the one with all the cookies and candy? And the one with all the T.V. dinners and frozen coffee cakes? Well, I just don't go down those aisles any more. There's plenty of HEALTHY FOOD in the other aisles. I concentrate on the fresh fruit and vegetables, the whole grains, flour, dried beans. I don't even look at the fat-rich steaks, but I do buy chicken breasts, eggs, a little cheese, skim milk - AND THEN I WALK REAL FAST PAST THE ICE CREAM AND YOGURT (that fruit flavored yogurt is loaded with sugar calories!).

"Dealing with feelings was a big problem for me. First I felt deprived because I was on a diet. And if I feel deprived or depressed I tend to eat. And if my husband and I have an argument I eat. So I began to REWARD myself and COMFORT myself with other kinds of goodies. Makeup, magazines, perfume, and material (for dress making) work well for me. Also, I gave myself a permanent reward as part of my new SLENDER LIFESTYLE. I joined a gym and I

have a weight workout and then a soak in the hot tub three evenings a week. I LOVE comparing notes with the other women there. And you know, my husband and kids seem to get along fine in my absence! I guess I've SUBSTITUTED for those old fat-producing food rewards with some better rewards. Oh, by the way, I always crave sweets before my period, and that's a time when I do indulge myself. I have one cream filled chocolate each afternoon for three or four days on those days. Sometimes two if I'm really down. But you won't catch me eating the whole box any more! My new eating habits seem to keep me quite satisfied. I think I really craved complex carbohydrate all the time and just ate too much fat and sugar instead. And I KNOW I didn't get enough physical activity. Now I actually take pride in being able to do more exercises than my exercise partner. Hey, and I'm the girl who hated physical education period in highschool because it made my gorgeous hair all sweaty!

#### SOME TIPS FOR EATING WELL

**Breakfast:** Poach or boil an egg and serve it on dry, whole grain toast. Add a piece of fresh fruit, coffee with milk and sugar. Depending on how many calories you want, add grits with salt and pepper (no butter or just a sliver of butter, enough to give it flavor). Or, add an extra piece of toast with about two teaspoons of your favorite jam.

**Supper:** Skin and de-fat a chicken. Cut off the tail and first two (tips and second segments) of the wings as they are full of fat. Better still, use only breast meat. Brown in 1/2 tablespoon of oil (not lard or shortning) and add 1/2 inch white wine or cooking sherry. Season with tarragon and thyme. Add your favorite vegetables, for example carrots, onions, and potatoes. Cover and simmer until chicken is tender, about a half an hour. If you use more tender vegetables, like yellow squash, wait until chicken is almost done before adding them.

#### CUTTING FAT AND SUGAR CALORIES

1. Dealing with fat: Trim all meats. Buy lean cuts. Cool all meat stews and soups and skim the top layer of fat off before re-heating and serving. Serve only half-size meat portions.
2. Cook with less fat. By stirring as you brown, avoiding batters, broiling and baking, you can cut down on fats.
3. Learn about new ways of cooking. The Chinese stir-fry in large pots called woks. Carefully control the amount of oil you use.
4. DON'T FOLLOW RECIPIES, cut down sugar and fat!

5. Eat fruit and vegetables! INCREASE COMPLEX CARBOHYDRATES (beans, rice, peas, potatoes, sweet potatoes, noodles, macaroni, spaghetti, bread, particularly whole grain bread, grains).

## GOALS FOR LOSING WEIGHT AND FEELING BETTER

Your goals this week will be to earn 400 points. If you've had trouble keeping up with the program so far, use this week to catch up. Remember, the goals we help you set will help you to become a new and slender person. Just by carrying out these simple tasks you can achieve your long-term goals of weight loss. ALL YOU HAVE TO DO IS CARRY OUT THE DAILY GOALS!

1. By now you have a great deal of information about your eating habits. You've also learned a lot about making changes what will cause weight loss. Let next Saturday be your day to put all these changes into effect. Use this day as a MODEL day for eating better and healthful physical activity. Prepare the entire day's menu in advance. Use this day for one of your 20 minute exercise days too. 100 points

2. Take your new lifestyle to the grocery store . This week, put your new dietary knowledge into effect by a carefully planned trip to the grocery store. AVOID high fat and high sugar foods and PURCHASE complex carbohydrates and fresh fruit and vegetables. Shop for a series of healthy meals. BRING YOUR GROCERY RECEIPT TO CLASS WITH ALL THE BETTER FOOD ITEMS CIRCLED. If you shop at Krogers, circle the actual items, otherwise circle the cost and indicate the items alongside. 100 points

3. Decide which of the following gives you the worst eating problem; specific times, specific outside cues, specific feelings. Using this week's lesson, what can you do? 100 points

4. Walk briskly 20 minutes per day for four days. Keep your heart rate at 50% maximum. 100 points

-----  
I earned the following points for the third week:

1.-----2.-----3.-----4.-----

Total points-----

SIGNATURE-----

Food item	Calories	GMS Protein	GMS FAT	GMS CARBS.
Breakfast {				
Snacks				
Lunch {				
Snacks				
Dinner {				
Snacks				
* Meals + Snacks Totals → (From figures given for each food item)		Total gms → x 4	x 9	x 4
* Note - you can total each meal to help you balance and plan - of course the important totals are the breakdown of proteins, fats, carbohydrates, and the total for the day. Your 2 totals will vary slightly as an artifact of calorie estimation from proteins, fats, etc.	Total → calories (Breakdown to major food types)			Total for the day ⇒ (from major food groups)

## FOURTH WEEK

## LESS FAT, MORE COMPLEX CARBOHYDRATE

Betty G., of Radford lost 34 pounds in her first year of EATING BETTER and NEW, HEALTHY ACTIVITY LEVELS. Let her tell you what she learned:

"There's no way I could be a vegetarian. But I sure learned something from vegetarians. They can get most or all their protein by eating combinations of vegetable foods that give them adequate protein sources. IT JUST HAPPENS THAT THE COMPLEX CARBOHYDRATES, WHEN MIXED IN VARIOUS WAYS, PROVIDE ADEQUATE AMOUNTS OF PROTEINS. So I discovered I could get some tasty recipes for complex carbohydrate foods AND some good, vegetable protein sources out of vegetarian cookbooks. These recipes sort of revolve around the fact that single complex carbohydrates, like JUST RICE for example, can't provide humans with protein that we can use unless we mix in some animal protein (meat) or some other complex carbohydrate like wheat, beans, or sesame seeds. The main thing is that THESE RECIPES ARE REALLY LOADED WITH COMPLEX CARBOHYDRATE, and I use them as a carbohydrate source and just add a LITTLE meat for flavor and to be sure I get enough protein. Cutting down on meat and upping complex carbohydrate gives me LOW-FAT PROTEIN.

"So what's so great about low fat protein? Well, remember I really needed to cut down on fats. And I found I was getting too much fat BECAUSE I ATE TOO MUCH FATTY RED MEAT AND FRIED MEAT PROTEIN! So by eating complex carbohydrates I can get that 55% carbohydrate level, still get plenty of protein, AND CUT FATS TO 30%!

"But you like meat! Well, so do I, but I've found I can eat 4 ounces of steak at a meal instead of half a pound. And I've found that I can use a few ounces of minced country ham in a rich bean soup instead of eating two thick slices. And that's one way of cutting down on fats! Now I don't go hungry, because I replace the extra steak with bulky complex carbohydrate. Some of you may still be confused about complex carbohydrates. Remember, I'm talking about grains (wheat, oats, barley, rye, corn, rice), beans and peas, white potatoes and sweet potatoes. I got a lot of good ideas from "Diet for a Small Planet" by Frances Lappe (Ballentine paperback). I also like "Moosewood Cookbook" by Mollie Katzen, and "The Enchanted Broccoli Forest" by the same author. Her Galician Garbanzo Soup from the second book is delicious, just don't worry if you have to use canned beans instead of dried, and I go with kidney or white beans too. Throw in some minced country ham, use chicken broth (canned is fine, just add equal amounts of water). I like more potato than she calls for, and don't worry if you lack tomatoes or celery.

Why not try some of Betty's ideas yourself. By the way, here's the world's best soup from my wife's store of

## Italian recipies:

PASTA E FAGIOLI (Pasta Fazool), Italian Bean Soup to most of us.

Soak 3 cups dried beans (big limas or white beans) overnight OR cover with water, bring to a boil, turn off stove, cover, and let sit for 1 hour until softened. Drain and discard water. Put beans in a big pot, add 10 cups water and bring to a boil. Add 1 tablespoon salt, a hamhock or two, some chopped onion & garlic, 1 tsp basil & a half tsp oregano. Add a LITTLE minced pepperoni if you wish. Simmer, covered, until beans are tender (about 3 hours). Add one medium sized can of tomato sauce. Add about 2 cups of cooked elbow macaroni and remove from the heat. Serve sprinkled with grated parmesan cheese. We don't seem to get much fat coming off the hamhocks (which we don't eat), but a fat-free method would be to make ten cups of stock by boiling the hamhocks first. In cold weather you can then remove the hamhocks and set the stock out on the back porch (covered so Rover doesn't get into it) to let the fat solidify on the surface. Remove the thin layer of fat and add stock to the beans. Continue as above. This recipie will make a big meal for four people.

\* In case you're interested, here's the story on protein. All protein is made of combinations of amino acids. There are 22 amino acids in all, and we can manufacture all but 9 of them in our own bodies. Plant proteins are incomplete, as they lack one or more of these 9 ESSENTIAL amino acids. Animal proteins are generally complete, for they tend not to lack any of the essential amino acids. Now different plant sources lack different essential amino acids, so if we mix say beans with corn, rice, wheat, barley, or oats we get a complete protein (the amino acids of the beans and corn, are different and they COMPLEMENT one another, that is they add up to a complete protein). So you can see how Mexicans get a complete protein by combining a tortilla (corn) with beans, or how we can combine black-eyed peas with rice for a complete protein!

If you eat a near vegetarian diet it may be a good idea to eat just a LITTLE red meat or cheese, skim milk, or chicken, or fish to be sure you are getting adequate protein. JUST KEEP THE FAT LEVELS WAY DOWN to 30% or a little less!

There are a lot of good nutrition books on the market, but one very good one is "Jane Brody's Nutrition Book", published by W. W. Norton and Co. Any good bookstore will order this or other books for you.

## GOALS FOR LOSING WEIGHT AND FEELING BETTER

To earn 400 points

1. Work on improving snacks and meals for the whole week by using your earlier eating lists. Be sure you make shopping lists. 100 points
2. Continue thinking about last week's trouble spots, but add the following to your list:
  - a. What are problem foods and how can you cope with them?
  - b. How can you cope with problems caused by eating out?
  - c. How can you cope with relapses into old, fat producing ways? Write one sentence answers to these and last week's problem spot questions. 100 points
4. Have a beautiful, brisk walk 30 minutes per day for four days at 50% maximum heart rate. 100 points

-----  
 I earned the following points for the third week:

1.-----

2.-----

3.-----

4.-----

Total points -----

SIGNATURE -----

## FIFTH WEEK

Review: This program is designed to help you eat better and reach a stimulating level of pleasant physical activity. If you have followed the program so far you have done the following things:

1. Paid attention to your old eating habits
2. Probably eating a better balance of fats, proteins, and carbohydrates. Many of you are now eating more fruit, vegetables, and starchy foods, less red meat and other fatty foods.
3. Because you now know how much you were eating, you have now cut down on the total calorie value of your food in order to lose weight.
4. Now you know how to turn on your fat burners by taking a brisk walk for 30 minutes, four days a week, at 50% maximum heart rate.
5. Maybe you have also discovered some problems, such as certain times, places, feelings, or foods, which have made it hard for you to ALWAYS follow your new eating and activity styles. If so, we have considered ways you might deal with these problems.
6. Finally, you have been given quite a few simple tasks which can help you to make the changes into a new and more slender life-style.

READ OVER THE ABOVE LIST CAREFULLY AND DECIDE IF YOU ARE REALLY PARTICIPATING FULLY IN THIS PROGRAM. IN THIS KIND OF LIFE-STYLE PROGRAM IT IS EASY TO KICK BACK AND WIND UP STANDING ON THE SIDELINES JUST THINKING THAT YOU ARE REALLY CHANGING.

Think for a moment. Changing a whole lifetime of eating the wrong foods and not getting health-giving physical activity is very difficult. It is at least as hard as, for example, learning enough French to conduct simple conversations, or learning enough ballet to have a small role in a company production. Either of these achievements would take at least one year of intensive effort and constant practice! IT IS NATURAL TO TAKE IT EASY AND GOOF-OFF A LITTLE, BUT IF YOU DO IT ALL THE TIME IN THIS PROGRAM YOU'LL SIMPLY NEVER MAKE THE KINDS OF CHANGES THAT WILL GIVE YOU A LIFE-TIME OF SLENDER LIVING.

Fifth Week: THIS IS GOING TO BE A WONDERFUL WEEK FOR ALL OF YOU WHO HAVE COME THIS FAR! This is the week when your exercise will begin to REALLY TURN ON YOUR FAT BURNERS! Now most of you have lost little or no weight YET, and that's fine because these first four weeks have been PREPARING YOU TO BURN FAT! Beginning this week, if you are eating better and eating a little less, your body measurements and body weight will begin to change. Many of you have already started to lose fat in your hips, waist, and

thighs. Now they will begin to trim down, EVEN THOUGH YOU MAY NOT LOSE WEIGHT AT FIRST (YOU ARE ALSO BUILDING MUSCLE, AND MUSCLE WEIGHS MORE THAN FAT). After a week or two more of running your FAT BURNERS, you WILL begin to lose weight (if you don't just count your calories for a few days again to see if you need to cut down a little more. If necessary you can make a downward adjustment).

Be sure to eat enough BETTER FOOD to keep up your strength and muscle growth at this time. STRONG MUSCLES will allow you to be physically active and keep your FAT BURNERS running full blast! You can do it. You know how to eat and how to adjust your eating until you begin to lose weight. DON'T STARVE YOURSELF! Losing slowly is best. One pound a week is plenty.

Remember, you can use a brisk walk or substitute lots of other activities. Aerobic dance, jogging, swimming, stretch classes, yoga, or karate may suit you better than walking. Rapid walking in a pool or stationary cycling is fine if you need to reduce the stress on your knees or hips. But remember that none of these will turn on your FAT BURNERS for you UNLESS YOU DO THEM LONG ENOUGH AND BRISKLY ENOUGH. YOU MUST GET YOUR HEART RATE TO 60% MAXIMUM FOR AT LEAST 30 MINUTES, FOUR DAYS A WEEK.

Which will you do? INITIAL ONE.

1. Yes, I have been able to keep up and will continue to make progress.

2. I will catch up and make progress from now on.

GOAL FOR THIS WEEK: To earn 400 points

1. Walk briskly 30 minutes per day for four days. KEEP YOUR HEART BEAT AT 60% MAXIMUM. 200 points

2. EAT BETTER BY CAREFULLY LIMITING FATS, and by KEEPING YOUR FOOD TO A WEIGHT-LOSING LEVEL. 200 points

-----  
I earned the following points for the fifth week:

1.-----

2.-----

Signature-----

## SIXTH WEEK

**Goofing off:** As we stressed last week, you should now be far enough along in this program to be burning off fatty tissue through your life-style changes of EATING BETTER and STIMULATING PHYSICAL ACTIVITY. By now the program should be easy for you, but you must guard against the dangers of GOOFING OFF AND SABOTAGE. Everyone goofs off from time to time. You may eat fatty and sweet foods for several days, or you may miss your brisk walks or other activity for a whole week. When you have goofed off, the tendency will be to say, "Oh, I've blown it now and I'm still 26 pounds overweight, I might as well give up!"

**All is not lost:** When you goof off you are only being human. Remember, YOUR NEW, HIGHER METABOLIC RATE IS NOT GOING TO SLOW DOWN OVERNIGHT. Even if you goof off for a week or two you probably have not lost as much as you think. Also, NOW YOU KNOW HOW TO LOSE FAT.

**Forgive yourself:** So what will it take to get you back on track? JUST ONE DAY! REMEMBER, your goals are ONE DAY AT A TIME. IF YOU MAKE THIS DAY A TOTAL COMMITMENT TO EATING BETTER AND STIMULATING PHYSICAL ACTIVITY THAT'S ALL YOU NEED TO DO! So if you've goofed off, forgive yourself and make TODAY your best day ever. All you need to do is string together one day at a time!

**Rewards:** Remember to reward yourself. Even though your new life-style is a reward in itself, YOU ARE MAKING SOME BIG CHANGES IN YOUR WAY OF LIVING. You should be rewarded for that! Get a new pair of walking shoes, a new outfit, or a hair-styling. Buy a good book on health, beauty, yoga, whatever turns you on.

**The goal is now:** Since we need to reach for goals all our lives there may never be a magic moment when you can say, "This is the moment when I have attained what I want." But rather you must say, "I am busy BEING the kind of person I want to be and ENJOYING the new life I am making for myself!"

**Sabotage:** Sabotage may enter your program soon. You or the people close to you may sabotage you. There is a certain safety in being heavy. You may find that, as you lose weight, you are becoming more of a sex object to others. Or, that more will be expected of you. Or, your husband, children, etc. may feel uncomfortable with your new appearance. Or, you may find you feel physically and emotionally stronger when you are heavier. People in your life may be jealous of you or annoyed at the time you are spending with your new life, or your better ways of eating may not appeal to them. Your best friend may be threatened when her husband comments on how good you are looking. If some of these things are happening to you, just remember that you are still you, and it may just take a little while for you and others to be comfortable with weight loss and life-style change.

Goals for the sixth week:

1. Each day keep notes on the day's BETTER EATING AND STIMULATING ACTIVITY. Indicate your goof offs and where you are totally committed. Use all the little tricks you have learned! BRING YOUR NOTES AND TURN THEM IN AT THE NEXT MEETING! See if you can have a totally committed week this week. 200 points.

2. Physical activity is the KEY to this program. Eating better and cutting calories alone is good, but to lose weight YOU MUST GET YOUR FAT BURNER WORKING! This week we will hit the peak of our activity. Walk at 60% maximum heart rate for 40 minutes, four days. 200 points.

-----

I earned the following points this sixth week:

1. -----

2. -----

Signed -----Date-----

## Seventh Week

By now many of you are starting to lose weight by losing fatty tissue. Just as importantly, you are developing muscles that will make your body more shapely and feminine and will allow you to continue in a lifetime of healthy activity. Finally, by losing fat and developing a beautiful, more vital body, you are insuring better health for yourself. HERE ARE SOME OF THE IMPORTANT FACTS YOU SHOULD HAVE DISCOVERED DURING THE PAST SIX WEEKS.

**TIME:** It has taken time to make the progress most of you have made. BUT YOU HAVE MADE THIS PROGRESS IN THE BEST WAY POSSIBLE. You have STARTED EATING BETTER; you have made RELATIVELY SMALL, SENSIBLE REDUCTIONS IN THE AMOUNT OF FOOD YOU EAT; you have INCREASED YOUR METABOLISM BY HEALTHY PHYSICAL ACTIVITY; you have MAINTAINED YOUR STRENGTH AND MUSCLE; and, best of all, YOU HAVE DONE IT BY YOURSELF.

**YOU ARE RESPONSIBLE:** It is important that you take a lot of the credit for whatever changes you have made in your body. Remember, YOU HAD TO MONITOR, YOU HAD TO CONSTRUCT YOUR OWN BETTER EATING PLAN, YOU HAD TO DEVELOP A PHYSICAL ACTIVITY PLAN, AND YOU HAD TO CARRY IT ALL OUT! Take the credit for that. Give yourself a pat on the back!

**THE GOALS:** ABOVE ALL, YOU MUST HAVE DAILY GOALS. If you succeed in your daily goals the future goals will take care of themselves.

**THE FUTURE:** You have learned how to "body-mold" your own body. We will be meeting next week, and then every two weeks for the two following meetings, then, finally, once a month for the last three months. You WILL be getting new information and help for the next four months, but what if you have to leave for the summer, or what if you need help between meetings? HERE ARE THE SIMPLE RULES FOR SUCCESS: 1. Count calories if you think you are goofing off, get back on track. 2. You can always re-start a STALLED FAT BURNER by a healthy shot of physical activity. Just remember to keep the food intake down a little below your "no-loss, no-gain" food level. 3. YOUR FAT-BURNER WILL NOT WORK IF YOUR HEART RATE IS NOT AT LEAST 60% MAXIMUM! 4. Use all the ideas you can for winning the fight against those bad times, places, and situations. Beware of sabotage! USE DAILY GOALS!

**WHAT IF NOTHING IS HAPPENING:** Just as you can take credit for gains, you must take responsibility if nothing is happening. Ask questions of yourself and be honest with the answers: Are you really in program TOTALLY? Are you really EATING BETTER? Have you really cut down? Are you really TURNING ON YOUR FAT BURNER FOUR TIMES A WEEK FOR 40 MINUTES AND 60% MAXIMUM HEART RATE? Doing "part" of the program WON'T WORK!

**THIS IS THE SECRET:** The secret of weight control is that THERE IS NO SECRET. THERE IS NO "QUICK FIX," NO "MIRACLE DIET." SOME OF YOU WILL NOT BELIEVE THIS AND WILL PERSIST IN YOUR SEARCH FOR THE

AMAZING NEW DIET THAT WILL TAKE THOSE POUNDS OFF YOU. Others will slowly make changes in your lifestyles that will allow you to slowly burn off excess fat. A half pound a week yields 25 pounds in a year. If you had started this program a year or two or three ago - where would you be today? Where will you be in a year or two or three from now?

At this point you should be TOTALLY involved in the program. From now on in we will be giving you tips and helping you with relapses and sticking points. The tip for this week concerns salads. Beware of eating ONLY salads. You won't get much protein or carbohydrate with most of them, but you may get a HIGH PERCENTAGE of fat in the form of salad dressing. Salads yes, wonderful for the fiber, minerals, and vitamins they give you, but eat them with a plenty of carbohydrate and a modest amount of protein.

MEETINGS THIS SUMMER: PLEASE REMEMBER THAT WE WILL BE MEETING 6 MORE TIMES. HERE ARE THE DATES. At the end of the sixth meeting you will receive a refund of your \$10 deposit!

#8 Tue 11 June or Thurs 13 June

#9 Tue 25 June or Thurs 27 June

#10 Tue 9 July or Thurs 11 July

#11 Tue 5 Aug or Thurs 8 Aug

#12 Tue 10 Sep or Thurs 12 Sep

#13 Tue 8 Oct or Thurs 10 Oct

MARK THESE IN YOUR CALENDAR! TIMES WILL REMAIN THE SAME! ALWAYS COME TO YOUR GROUP, NOT ANOTHER GROUP!

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Goals for the seventh week:

1. Physical activity will be critical in your new lifestyle. Walk briskly for 40 minutes four days a week at 60% maximum heart rate. 200 points.

2. Practice trading off your extra fats and sugar with extra complex carbohydrates, fruit, and vegetables. Keep a list each day of your trade-offs (for example, if you eat an icecream cone show how you make up for the extra sugar and fat). Keep your daily notes simple, but earn 200 points!

## EIGHTH WEEK

Congratulations. You have completed the first eight weeks of a life-change weight control program. To review, there have been several phases to this program:

1. Learning. You have learned the basic food categories and how to balance them in order to EAT BETTER.
2. Losing weight. You have learned how to measure what you eat and how to get rid of excess fats. You have also learned how to EAT BETTER for sensible weight loss WITHOUT STARVING.
3. You have learned about your problem areas and some easy ways to solve the problems ("I just threw out all the cookies, no more problem!").
4. You have learned how to TURN ON YOUR FAT BURNERS in an easy way that lets you SHAPE YOUR OWN BODY!.
5. You have done a lot of simple tasks that have helped you to PRACTICE your new, BODY SHAPING LIFESTYLE.

Changing the bad habits of a lifetime is VERY difficult. But it is working for YOU. Preliminary analysis of weight data in two groups shows an AVERAGE weight loss of 2.1 pounds in the past three week period. Only one (of 16 of you who were weighed) did not lose weight (and she did not gain)! This AVERAGE weight loss, if continued over a year, would be 36 pounds! But many of you don't need to lose that much! And some of you need to lose more! Suppose you need to lose 100 pounds. Several of you lost 6 or more pounds in three weeks. That's an average of over 100 pounds in a year! WE HOPE THIS INFORMATION ENCOURAGES YOU TO KEEP ON SHAPING YOUR OWN BODY. Weight control is VERY HARD AT FIRST! New ways of body-shaping are hard to get used to. WE THINK YOU HAVE MADE A WONDERFUL BEGINNING! AGAIN, CONGRATULATIONS

If you haven't changed your body as much as your friends in the program LOOK AGAIN AT HOW MUCH YOU HAVE BEEN ABLE TO EAT BETTER AND TURN ON YOUR FAT BURNER! Reading your recent practice papers (goofing off, etc.) suggests that some of you are not CONCENTRATING ON THE NEW YOU QUITE ENOUGH. Yes, you can eat icecream, candy, chips, and hamburgers, BUT YOU MUST REMEMBER THAT THESE HIGH FAT FOODS CAN REPRESENT THE WHOLE DAY'S FAT ALLOWANCE! FILL UP YOUR TUMMY THE REST OF THE DAY WITH COMPLEX CARBOHYDRATES. Some of you have eaten high fat food and then starved yourselves the rest of the day to "make it up." Thus, you are still eating your old, high-fat diet at a lower intake level. This will not work. You MUST eat the 12%, 30%, 55% balance of protein, fat, and carbohydrate, for you can't make the high fats go away by just starving them away. That is the old, DIETING WAY that will just cause you to rebound!

In spite of some problems, YOU NOW ALL KNOW HOW TO SHAPE YOUR BODIES. For the next two weeks it will be up to you to shape them each hour of each day!

Food tips for the next two weeks:

1. Set a goal to eat two apples each day. They will serve to fill you up and prevent you from eating junk food. They are also rich in fiber and have enough sugar to provide you with energy.
2. Thirsty? Drink 8 ounces of ice water instead of a cola or other beverage. Drinking water will keep you away from the temptation of the vending machines or the snack bars. Also, it's a healthy habit to form.
3. Even if you have to cook dinner for a hungry family you probably can arrange to have breakfast and lunch alone. These are the meals you can KEEP SIMPLE and high in complex carbohydrate. Set a schedule for the next two weeks. For example, toast, a poached egg, and skim milk for breakfast, and taboule salad in a half pita for lunch.

Low Fat Taboule recipe: Buy a box of bulghar wheat (Annie Kays has it).

1. Combine one cup of bulghar wheat with 1 1/2 cups of salted boiling water. Cover and let stand 20 minutes.
2. Add approx. 1/4 cup lemon or lime juice, crushed garlic to taste, 1/2 cup chopped scallions, a couple teasp. of fresh mint, 2 chopped tomatoes, (optional, chopped cucumber, chopped green pepper, grated carrot). Modified from original recipe in Moosewood Cookbook. This is something you can change to suit your taste. Chill and fill a half pita with taboule. Chewy and filling.

or,

Have two weeks of lunches of slices of whole grain bread, sliced fruit garnished with the chopped meats of four walnut halves, two small chunks of cheese, and a large glass of skim milk. Remember to EAT ENOUGH to keep your daily calories UP to 1500 or so calories per day. DON'T STARVE.

ABOVE ALL, keep on shaping your body. TURN ON YOUR FAT BURNERS at least 40 minutes per day at at least 60% maximum heart rate four days a week to keep burning fat. When you have lost enough fat you can start to eat a little more, but keep turning on your fat burners so you don't gain any fat back again!

REMEMBER TO CIRCLE THE NEXT MEETING IN YOUR CALENDAR, TUE 25 JUNE, OR THURS, 27 JUNE. HOW YOU USE YOUR PROGRAM IS NOW UP TO YOU!

TWO WEEK PLAN

Days and hours for physical activity:

Days:                      Activity:

Problems due to vacation, etc.

Plans for meals:

Problems due to parties, etc.

My fat loss goals for this two week period:

## TENTH WEEK

Staying with it: By now some of you have lost 12 to 15 pounds of fat. Others have made smaller, but equally positive fat reductions. BUT ALSO, SOME OF YOU ARE BEGINNING TO HAVE TROUBLE STAYING WITH THE PROGRAM!

Behavior change is difficult: This may be one of the hardest tasks you ever undertake. It sounds simple, EAT BETTER, CUT DOWN A LITTLE, INCREASE PHYSICAL ACTIVITY. DO THESE THINGS DAILY, ONE HOUR AT A TIME! But many of you have discovered how difficult it can be to change the habits of a lifetime.

Again, remember that it's got to be one day at a time, even one hour at a time. If you are getting discouraged because you haven't lost a single pound in three weeks think about this: Think how eating better may be improving your overall health. Think how your physical activity is firming you up and making you a more vital, energetic person. Review your program and find your weaknesses. YOU KNOW WHAT YOU NEED TO DO! Tighten up your eating and activity habits and keep on going - one step at a time!

Weight control tip: Physical activity can be used to bounce back from slips into poor eating habits. Probably the easiest weight control technique you can use is physical activity. Have you fallen back into the old habit of eating fatty, sugary snack foods all day and then thinking that a cup of yogurt will make up for it? Are you starting again to heap your plate with fried chicken and ham? Are you saying, "Well, YES, I worked pretty hard on my diet last week, BUT this week ... (the old "YES, BUT.." syndrome!).

One way to get back on track is to double or triple your physical activity and give your metabolism a big jolt. Now that warm summer weather is here it's easy to work up a sweat. If it gets too hot for you try walking at night. If you have maintained your physical activity, EVEN IF YOU'RE NOT STILL EATING GOOD FOOD, you can easily start losing again. Are you thinking, "yes, but ..." "Yes, but ..." will never get the job done.

For the next two weeks continue to eat better and maintain 40 minutes of physical activity at 60 % maximum heart rate four times a week.

REMEMBER OR NEXT MEETING DURING THE WEEK OF 8 JULY! MARK YOUR CALENDARS. MAKE A LOT OF PROGRESS WHILE THE WEATHER IS GOOD!

## TWELFTH WEEK

You have been eating good food and being physically active now for three months. You have worked hard to make this program work for you. Let's take a look at a composit participant in our weight control program and see where she is right now:

Judy is 34, the mother of two children. Three months ago she was approximately 50 pounds over-fat. During the past three months she has had three major set-backs. First, instead of walking she tried to jog and suffered from severely strained calf muscles for two weeks. This passed and she now walks briskly in her hilly neighborhood for 50 minutes, four days a week. Second, she and her husband had to make several changes in their daily routine and diet which were achieved only after a gradual period of compromise, some outbursts of anger, and a lot of give and take discussion. Third, when Judy's mother-in-law visited for two weeks Judy gained 6 pounds as a result of stress eating. She learned to combat this problem during a later visit by another relative by giving that relative the option of participating in the weight control program with her. Though the second visitor was not over-fat, he gladly took the opportunity to get out for brisk walks and eat some of Judy's lively new meals.

Today Judy is 16 pounds lighter than she was three months ago. She is one third of the way to her "ideal" weight goal. Her resting heart rate has dropped from 80 to 70 and her figure has changed much more than her weight loss would indicate because she has toned up her once flabby muscles. She has more pep and takes pride in her ability to walk the toughest hills. One of her proudest achievements is the inches she has lost off her waist. She now feels in charge of her future!

Here are two recipies Judy recently collected out of Redbook. They are only two of a large batch she routinely prepares:

1. Summer chicken salad: Combine 1 1/2 cups cubed, cooked chicken, 1/2 cup finely chopped water chestnuts, 1/2 cup seedless grapes, 1/2 cup chopped celery. Heap on a bed of fresh lettuce leaves. Pour on a dressing of 1/3 cup low cal mayonnaise, 2 tablespoons white wine vinegar, 1 tablespoon curry powder, 1 teaspoon ground ginger, and 1 teaspoon grated or dried onion.

2. Vegetable pizza: Top a half toasted English muffin with a mix of 1/4 cup chopped mushrooms, 2 tablespoons chopped sweet green peppers, 2 tablespoons chopped onion, 2 tablespoons tomatoe sauce. Heat in oven at 350 a few minutes till "bubbly" hot. Add shredded mozarella cheese (jack cheese will do also) and continue heating till cheese melts.

NEXT MEETING, WEEK OF 5 AUGUST. MARK IT IN YOUR DATE BOOK!  
MEANWHILE YOU KNOW WHAT YOU CAN DO TO SHAPE YOUR BODY AND LIFE.

## OTHER MATERIALS

In addition to the foregoing materials, all subjects were given calorie counting charts from McArdel, Katch, and Katch (1981, pp 449-477) and from Stuart and Davis (1972, pp 219-235).

APPENDIX G

## FIRST WEEK

**IMPROVING DIET:** This week we will examine your diet and determine how you can improve it. Most people don't really give much thought to their diet. This week you can learn a great deal about your eating habits. Simply monitor everything you eat each day for three days. It is important that you monitor EVERYTHING as you eat it, so carry a piece of paper and a pencil with you and indicate the time, what you are eating, and the amount. Be as specific as you can. Include all meals and even small snacks.

Transfer the above information to your daily food sheets. Then use the food calorie charts to determine the GRAMS of fats, carbohydrates, and proteins you have consumed. For example, a slice of raisin bread is 65 calories, a cup of skim milk is 90 calories, etc. Add all the calories to get your total calorie count for the day. THEN FIGURE THE GRAMS OF FAT, PROTEIN, AND CARBOHYDRATE SEPARATELY (for example, a slice of raisin bread has 2 grams of protein, 1 gram fat, 13 grams carbohydrate; and a glass of skim milk has 9 grams protein, no fat, and 12 grams carbohydrate. Add all the grams of fats, proteins, and carbohydrates for the day. If your day's caloric intake is balanced, the grams of fats, proteins and carbohydrates should be as follows depending on your total calories for the day:

Calories 1500	Gms protein 45-56	fat 50	carb 206
1600	Gms protein 48-60	fat 53	carb 220
1700	Gms protein 51-64	fat 57	carb 234
1800	Gms protein 54-68	fat 60	carb 248
1900	Gms protein 57-72	fat 63	carb 261
2000	Gms protein 60-76	fat 67	carb 275
2100	Gms protein 63-80	fat 70	carb 289
2200	Gms protein 66-84	fat 73	carb 303
2300	Gms protein 69-89	fat 77	carb 316
2400	Gms protein 72-92	fat 80	carb 330
2500	Gms protein 75-96	fat 83	carb 344
2600	Gms protein 78-100	fat 87	carb 358

To summarize proper dietary intake: protein grams should be about the same as fat grams; carbohydrate grams should be about four times fat grams. REMEMBER THAT MOST PEOPLE INGEST TOO MUCH FAT AND SUGAR AND NOT ENOUGH COMPLEX CARBOHYDRATES. The next thing to do will be to determine a balanced diet. First you must decide if you need to reduce the total calories. If your weight is stable and you are regularly consuming, say, 2460 calories per day then that amount must be about right for you. To lose weight you must reduce caloric intake. You may be able to reduce caloric intake considerably just by changing the kinds of food you ingest. For example, perhaps your diet is high in protein and fats. By reducing meats and increasing complex carbohydrate calories you may be able to

adjust the three food categories and lower total calories without decreasing the BULK of the food you eat. Try to design a nutritionally balanced dietary program for yourself. Concentrate on reducing sugar and fat consumption while including more complex carbohydrates such as potatoes, rice, pasta (spaghetti and noodles), beans, and whole grains. Remember that complex carbohydrate foods ALSO contain some protein! For example, instead of a doughnut for breakfast, substitute an extra piece of honey-bran toast, a complex carbohydrate and only about 95 calories compared to 125 for a doughnut. The bread also has a better nutritional balance. A doughnut has about 6 grams (55 calories) of fat while the bread has only about 1 gram (9 calories) of fat. Furthermore, a doughnut is loaded with sugar and has only about 8 calories of protein while the bread slice has 20 calories (5 grams) of protein and less sugar.

Conduct an analysis of your entire day's caloric intake in this fashion, reducing fats and sugars. You may find that a lot of your fats are associated with red meats or with fried foods. You can eliminate these by substituting broiling and baking for frying, and by reducing the sizes of red meat portions. Remember, bread, potatoes, rice, and beans all supply protein, particularly when served in combinations. Stir-frying or stews may allow you to use much smaller portions of red meat, so in structuring a new day's food list include ways of preparation. Also keep in mind that chicken and fish are lower in fats than red meats (but if they are fried they'll be QUITE HIGH in fat).

When you have assessed your meals and snacks for three days you will have an increased awareness of your troublesome eating habits and how you can improve them. Your findings will be discussed at the next group meeting. Consider modifying your eating behaviors both in terms of kinds and proportions of foods AND in more desirable ways of preparing them.

**EXERCISE:** Most heavy adults do not get as much exercise as lighter people. Exercise is A CRITICAL BEHAVIOR for weight loss and subsequent control. We will discuss this further in a later meeting, but for now it is IMPORTANT that you begin some QUALITY exercise IN ADDITION TO your everyday activities. One of the most effective exercises for overweight individuals is walking. Part two of this week's program will be walking for fifteen minutes each day for four days. It doesn't matter whether you walk four consecutive days or split them up. Be sure the walking is extra, that is walking IN ADDITION to the routine walking you normally do during the day. If you feel like exercising more, add five extra minutes, but don't overdo it. Let your body be the judge. This should be a restful walk, not a race. Don't attempt anything you wouldn't do in an ordinary walk during the day. Even this little bit of exercise will burn extra calories. Furthermore, it will

cause an increase in your metabolic rate which will burn EXTRA calories even after you quit exercising for the day. Record the days you walked, the time you walked, and, especially, your thoughts and feelings concerning the exercise. Bring these records with you to the next meeting.

#### DIET AND EXERCISE GOALS

Your goal for this week will be to earn 400 points. We will not be concerned with weight loss right now. PATHER YOUR BEHAVIORAL ASSIGNMENT WILL BE TO ATTAIN SHORT TERM GOALS. REMEMBER, THIS IS A LIFETIME PROGRAM. THE LONG TERM GOALS WILL OCCUR IF YOU CARRY OUT WEEKLY ASSIGNMENTS.

1. First, eat exactly as you usually do for the next three days. Don't try to diet or cut back. Use your Daily Food Sheets to monitor everything you eat for these three days -- 100 points

2. Using the planning sheets provided with the Daily Food Sheets, analyze each day's food for grams of fat, protein, carbohydrates, and total calories -----100 points

3. Modify each day's food list to produced a balanced diet. Eliminate extra fats and sugars, and achieve a proper balance of fats, proteins, and carbohydrates. Record your general ideas on pg. 3 of the Daily Food Sheet handout -----100 points

4. Exercise (by walking) 15 minutes each day for any four days of the next week ---- 100 points

-----  
I earned the following points for the first week:

1.-----

2.-----

3.-----

4.-----

Total points -----

SIGNATURE-----

FOOD MONITORING SHEET  
DIETARY ANALYSIS, FIRST STEP IN BEHAVIOR CHANGE

Yes, I want to develop better eating habits! Name-----Date----

Time (indicate which meal or snack	Food item and amount (*estimate)	Grams Protein	Grams Fat	Grams* Carbohydrates
Total grams of:		Protein	Fat	Carbohydrates
Equals total calories of		<u>    x4    </u>	<u>    x9    </u>	<u>    x4    </u>

-----  
 What should your grams of protein, fat, and carbohydrates be for your total calorie level? See next page, this handout.  
 -----  
 How must you change your dietary habits to effect a balanced diet?

\*Use nutritive value handouts to figure grams of protein, etc.

CHANGING YOUR PRESENT EATING HABITS

1. What is your caloric intake? (Use your 3 daily food charts.)

Day 1, calories-----  
 Day 2, calories-----  
 Day 3, calories-----

Average for 1 day (divide 3 day total by three) -----

2. If you have been staying the same weight or gaining recently you will need to reduce caloric intake to lose fat. Chose one and circle it:

- I am eating over 3,000 calories a day. Eliminate 700 calories per day, especially fat and sugar.
- I am eating 2500 to 3000 calories a day. Eliminate 500 calories per day, especially fat and sugar
- I am eating 1800 to 2500 calories a day. Eliminate 250 to 400 calories a day, especially fat and sugar

Use these figures as GUIDELINES ONLY. Don't try to reduce food intake by TOO much. DON'T EAT LESS THAN 1500 to 1600 calories a day in any case! It will be much better to cut your caloric intake by too LITTLE than by too much, as you will see!

Write your proposed new calorie level here: I plan to begin eating \_\_\_\_\_ calories a day.

3. How you can eat a nutritionally balanced diet and still get enough to eat!

Examine your Daily Food Charts. For the three days, determine your AVERAGE TOTAL CALORIES, Average intake of protein, fat, and carbohydrate?

Average total ---, Grams protein-----, Grams fat-----, Grams carbohydrate-----

You already determined fat, protein, and carbohydrate levels based your PRESENT caloric intake. Now, what are your recommended levels, based on your proposed NEW LOWER daily intake of calories?

RECOMMENDED DAILY LEVELS OF NUTRIENTS

Calories	1500	Gms protein	45-56	fat	50	carb	206
	1600	Gms protein	48-60	fat	53	carb	220
	1700	Gms protein	51-64	fat	57	carb	234
	1800	Gms protein	54-68	fat	60	carb	248
	1900	Gms protein	57-72	fat	63	carb	261
	2000	Gms protein	60-76	fat	67	carb	275
	2100	Gms protein	63-80	fat	70	carb	289
	2200	Gms protein	66-84	fat	73	carb	303
	2300	Gms protein	69-89	fat	77	carb	316
	2400	Gms protein	72-92	fat	80	carb	330
	2500	Gms protein	75-96	fat	83	carb	344
	2600	Gms protein	78-100	fat	87	carb	358

With your current eating habits:

Are you ingesting too much fat?-----

Are you ingesting too little carbohydrate?-----

Are you ingesting more protein than you need?-----

Most people in this country have diets with too much fat, not enough COMPLEX carbohydrate. Your task will be to eat a more balanced diet? Examine your food lists.

Is your diet too rich in fatty snacks (chips, chocolate, dips)?-----

Is your diet too rich in fatty meat (ham, steak, hamburger, hotdogs)?-----

Is your diet too rich in salad dressing, oil, butter, fried foods, whole milk?-----

-----  
Record your ideas here for A NEW, BALANCED, DIET:

BY MONITORING AND DIETARY ANALYSIS YOU HAVE BEGUN THE PROBLEM SOLVING ACTIVITIES NECESSARY TO WEIGHT CONTROL. You now have much of the information necessary to EFFECT DIETARY BEHAVIOR MODIFICATION! Save this information. It will be the BASIS of a lot of the problem solving tasks you will be undertaking in the future.

## SECOND WEEK

A reminder: Always bring ALL your program handouts to class with you. You will especially need the sheet with the tear-off point total form.

Review: Last week you began the program by monitoring your calorie intake for three days. From this behavioral information you should have been able to use your handouts to determine TOTAL CALORIES and CALORIES OF FAT, PROTEIN, AND CARBOHYDRATES. You were then asked to begin problem solving by writing out suggestions for balancing those three days' meals and snacks. Finally, you were asked to exercise 15 minutes a day for each of four days.

You should have rated yourself on each of those four tasks, awarding yourself up to 100 points for each task completed. Award partial points for partially completed tasks. For example, if you only monitored one day's meal, give yourself 33 points instead of 100 for that goal. REMEMBER, EVEN THOUGH YOUR GOAL IN THIS PROGRAM MIGHT BE TO LOSE 30 POUNDS, THE ONLY WAY YOU WILL ACCOMPLISH THAT GOAL WILL BE BY SETTING AND KEEPING DAY TO DAY GOALS. WE ARE TRYING TO HELP YOU SET AND ACHIEVE THOSE DAY TO DAY GOALS. How much you achieve in this program will depend on your being willing to complete behavioral assignments that lead to the day to day goals.

Weight: We lose weight by losing muscle and/or fatty tissue. Losing weight by dieting usually involves muscle tissue and losing a good deal of water. Such weight loss does not burn much fat. Thus, when the dieter goes off the diet she tends to gain back the water AND EXTRA FAT, winding up heavier than when she began. This is called the "rebound" effect.

The Energy Equation: Ingesting more calories than we need results in the storage of extra calories as fat. If your weight is stable you can reduce your caloric intake and begin to lose weight. Many people in this country ingest almost 50% of their calories as fat. By monitoring your dietary intake you may have discovered by now that you are ingesting too much high calorie fat. You can begin to control your weight by undertaking more desirable eating habits. For example, replace scrambled eggs with poached eggs, use dry rather than buttered toast, eat a 100 calorie apple or banana instead a 300 calorie bag of oily potato chips. Just cutting meat portions in half can produce beneficial reductions in fat calories.

Sugar: Remember that sugar is a simple, not complex, carbohydrate. It is high in calories, easily digested, and quickly converts to fat. It will be important for you to carefully control sugar intake if you wish to lose weight. Use diet sodas and carefully limit the amounts of other sweets you ingest.

Exercise: Aerobic exercise is critical in weight loss. An aerobic effect begins after about 12 minutes of exercise at 60% maximum heart rate. Aerobic exercise will prevent your metabolism from shifting in response to caloric reduction. As a result of aerobic

exercise your metabolism will remain high and your calorie reduction will work, enabling you to lose weight. When you reach your weight goal, aerobic exercise will prevent you from regaining the weight. Above all, aerobic exercise will burn off fatty tissue!

Maintaining lower body weight: Attainment of a target body weight will not mean you discontinue your exercise, diet program. You will need to continue ingesting low-fat, low-sugar calories and continue an increased activity level in order to avoid regaining lost weight. Of course you will be permitted to increase your dietary intake when you have reached your target weight (so you don't continue losing weight). The behavioral assignments you will be given in this program should enable you to maintain necessary diet and exercise modifications. Of course you will be able to substitute various forms of exercise, such as ballet or aerobic dance, for walking. The important thing is that you do not slip back into undesirable behaviors such as low frequency of exercising and high intake of fat producing foods. Don't be too concerned if you find the exercise difficult at first. It will become easy with time.

#### HOW MUCH SHOULD YOU EAT

Roughly, an active young woman (18-35) needs about 15 calories per pound of body weight per day. From age 35 to 55 these requirements drop about 1 calorie per pound per day. From 55 to 75 they drop another calorie (down to 13) per pound per day. s

If your weight has been stable for a few weeks then your daily calorie intake is matching your needs. If you reduce your caloric intake by 250 to 500 calories per day AND increase your exercise activity, you can lost 1/2 to 1 pound a week.

#### WHY YOU WILL WANT TO ENGAGE IN AEROBIC EXERCISE ACTIVITY

Dieters who reduce their caloric intake by 1,000 calories per day DO NOT LOSE WEIGHT AT THE RATE THEY ARE EXPECTED TO. Instead their metabolism changes and they maintain body weight on less food. Aerobic exercise activity restores proper metabolism. You'll need 30 minutes a day four times a week. We are working toward that goal.

The secret of aerobic activity, then, is that it keeps your metabolic rate high, EVEN WHEN YOU ARE SLEEPING OR SITTING DOWN, and you will lose weight as you should according to your decrease in calories!

A suggestion: You can reduce caloric intake by halving your meat portions, by drinking skim milk instead of whole milk, by limiting cookies and other baked goods, and by substituting broiled and baked meats for fried. Make your snacks fresh fruit, the best you can buy. Increase COMPLEX CARBOHYDRATES, such as whole grain breads, rice, noodles, spaghetti, beans, and potatoes.

DIET AND EXERCISE GOALS: To earn 400 points

1. Monitor everything you eat for 2 days. Continue your analysis of your eating behaviors from last week. 100 points

2. Begin instituting some better eating habits based on your analysis of your Daily Food Charts. Determine a calorie level for your weight loss program. Actually work out three sample days' meals and snacks which will be lower in total calories (assuming you need to lose weight), lower in fats and sugar and higher in complex carbohydrates. Bring copies of these in to class. 100 points

3. Correcting improper eating behaviors. If you are overeating or eating too many fatty or sweet foods, write brief answers to the following questions. These will be discussed in class:

a. What are the cues to eat that you can change or avoid?

b. Where are the places that cause you problems, and how can you deal with them?

c. What are your problem times and how can you deal with them? 100 points

4. Walk for 15 minutes per day at 50% maximum heart rate each day for four days. Be sure to check your heart rate and try to keep it at 50% maximum. 100 points

The most points you can earn is 400. Indicate, beside each area, the number of points you have earned.

-----

I earned the following points for the second week:

1.-----

2.-----

3.-----

4.-----

Total points -----

Signature-----

### MONITORING YOUR HEART RATE TO ACHIEVE AN AEROBIC EXERCISE LEVEL

In order for your walking to produce a metabolic activity increase you need to keep your heart beat at a safe aerobic level. If you exercise too much it will not be good for you. If you do not achieve an aerobic level, however, exercise will not have the desired effect of burning fat calories while you are at rest.

The heart rate you will need to reach to achieve an aerobic effect is determined in the following manner:

1. Practice monitoring your pulse by determining your resting pulse rate. Use several samples in order to be accurate. You can monitor your pulse at your wrist or by pushing LIGHTLY against your throat above a carotid artery. You will be asked to do this in class.
2. Determine your MAXIMUM heart rate by subtracting your age from 220 if you are a woman (half your age from 205 if you are a man). Thus a woman 50 years old would have a maximum heart rate of 170. See the chart below FOR WOMEN.
3. To determine your 50% or 60% rate just multiply your MAXIMUM rate by .50 or .60. For example, .60 times 170 equals 102. Thus, if you are a 50 year old woman wanting exercise at a 60% rate, you would want to walk fast enough to get your heart beating 102 beats per minute (but not more). A 30 year old woman would have a 60% rate of 114, and a 20 year old woman would have a rate of 120. See the chart below.

Age	Max h.r.	50% level	60% level	70% level
20	200	100	120	140
25	195	97	117	137
30	190	95	114	133
35	185	93	111	130
40	180	90	108	126
45	175	88	105	123
50	170	85	102	119
55	165	83	99	116
60	160	80	96	112
65	155	78	93	108

## DESIRABLE DIETING BEHAVIORS

## DECREASE INTAKE OF

hamburgers  
 hotdogs  
 all deep fried foods  
 frenchfries  
 fried chicken  
 ham  
 sausage  
 all red meat  
 whole milk  
 icecream  
 eggs  
 cheese  
 nuts  
 all chips  
 sour cream  
 all cookies  
 pies  
 pastries  
 doughnuts  
 lard  
 butter, oil  
 mayonnaise, oily dressings  
 chocolate

## INCREASE INTAKE OF

skim milk  
 chicken, skinned, white meat  
 fish (not fried)  
 clams, crab, oysters  
 shrimp, tuna in water  
 all beans, split peas  
 lentils  
 green vegetables  
 carrots, cauliflower  
 all squashes  
 potatoes (boiled or baked)  
 leafy vegetables  
 grains, corn, oats, wheat)  
 melons  
 all fresh (or frozen) fruit  
 all fresh (or frozen) berries  
 macaroni, spaghetti, noodles  
 rice  
 low cal soft drinks  
 low cal salad dressings  
 raw fruits etc. as desserts  
 garden fresh vegetables  
 unsweetened fruit juices

## THIRD WEEK

## BEHAVIORAL STRATEGIES FOR DIETING

Maladaptive eating behaviors involve patterns of stimulus and response. Among the stimuli that trigger problem eating are places, times, feelings, and their combinations. These stimuli trigger eating behaviors which may have the SHORT TERM POSITIVE CONSEQUENCES OF SATISFYING AN IMMEDIATE URGE. Unfortunately, they also have LONG TERM NEGATIVE CONSEQUENCES OF CAUSING WEIGHT GAIN. Since we cannot FEEL weight gain immediately, the short term consequences tend to produce a potent effect on our behaviors.

The way to change these maladaptive responses to eating stimuli is: 1. To recognize the stimuli, and 2. to use self control to modify your response to them.

1. Places: Certain supermarket aisles, pastry stores, friends' houses, restaurants, vacation sites, your own kitchen, all may trigger maladaptive purchasing or eating habits. You may control your responses by AVOIDING these situations altogether, by USING SELF CONTROL AND LIMITING what you buy, eat, etc., or by the excellent technique of RESPONSE SUBSTITUTION, that is, by buying fruit instead of cookies, by filling up on potatoes and declining the fried meat, or by drinking fruit juice instead of a milkshake. You may also use STIMULUS NARROWING, just putting tempting food items out of sight, or LABELING cookies, etc. that are for others in the family, immediately freezing left-overs. To narrow the tempting items in your home, always shop from a list, carefully evaluating your week's meals and snacks in advance. Evaluate what you are buying. Are those doughnuts for the children really being consumed by them? Or by you?

2. Times: Most of the above techniques can also be used to deal with times which trigger undesirable eating behaviors. Eating non-sugary snacks can help control appetite. Substitute fruit for sugar. Avoid coffee, it can make you crash when the caffeine wears off.

3. Feelings: Problem feelings frequently trigger excess caloric intake. For example, when you diet you may feel deprived. Avoid this feeling by a schedule of REWARDS. ALWAYS reward yourself for your new behaviors. For example, provide positive consequences of five cents a point for each weekly point you earn. Then buy a good book or a new article of clothing. A reward for each day of new behaviors is even a good idea. Do not use food for rewards. A brisk walk on a beautiful day can even be a reward. If you have problems with maladaptive eating just before your period, provide extra rewards at this time, luxurious bubble baths, new lipsticks, a movie, etc. When anger or other stress bring on an eating binge, try to

substitute another, adaptive behavior.

Remember that the long term consequences of maladaptive eating behaviors is being overweight. Break the cycle by CONTROLLING the RESPONSES to eating stimuli.

#### SOME BETTER EATING BEHAVIORS

Breakfast: Poach or boil an egg and serve it on dry, whole grain toast. Add a piece of fresh fruit, coffee with milk and sugar. Depending on how many calories you want, add grits with salt and pepper (no butter or just a sliver of butter, enough to give it flavor). Or, add an extra piece of toast with about two teaspoons of your favorite jam.

Supper: Skin and de-fat a chicken. Cut off the tail and first two (tips and second segments) of the wings as they are full of fat. Better still, use only breast meat. Brown in 1/2 tablespoon of oil (not lard or shortning) and add 1/2 inch white wine or cooking sherry. Season with tarragon and thyme. Add your favorite vegetables, for example carrots, onions, and potatoes. Cover and simmer until chicken is tender, about a half an hour. If you use more tender vegetables, like yellow squash, wait until chicken is almost done before adding them.

#### SUGGESTIONS FOR WAYS TO REDUCE CALORIC INTAKE

1. Dealing with fat: Trim all meats. Buy lean cuts. Cool all meat stews and soups and skim the top layer of fat off before re-heating and serving. Serve only half-size meat portions.
2. Cook with less fat. By stirring as you brown, avoiding batters, broiling and baking, you can cut down on fats.
3. Learn about new ways of cooking. The Chinese stir-fry in large pots called woks. Carefully control the amount of oil you use.
4. DON'T FOLLOW RECIPIES, cut down sugar and fat!
5. Eat fruit and vegetables! INCREASE COMPLEX CARBOHYDRATES (beans, rice, peas, potatoes, sweet potatoes, noodles, macaroni, spaghetti, bread, particularly whole grain bread, grains).

## DIET AND EXERCISE GOALS

Your diet and exercise goal for this week will be to earn 400 points. If you have not kept up with the program so far this will be your opportunity to catch up. Remember, to effect behavior change it is necessary for you to practice using new behaviors according to the assignments you have been given. By this behavioral practice you will incorporate new strategies into your behavioral repertoire. But YOU MUST CARRY OUT THE NEW BEHAVIORS. ONLY THINKING ABOUT THEM WILL NOT BE ENOUGH!

## BEHAVIORAL ASSIGNMENTS:

1. By now you have a great deal of information about your eating behaviors. You also have information about modifying those behaviors to effect weight loss. Let next Saturday be your day to put all these strategies into play. Use this day as a MODEL dieting and exercise day. Prepare the entire day's menu, keep an accurate account of your caloric intake. Use this day for one of your 20 minute exercise days too. 100 points
2. Part of your dieting program involves modification of faulty shopping behaviors. This week, put your new dietary knowledge into effect by a carefully planned trip to the grocery store. AVOID high fat and high sugar foods and PURCHASE complex carbohydrates and fresh fruit and vegetables. Shop for a nutritionally balanced series of meals. BRING YOUR GROCERY RECEIPT TO CLASS WITH ALL THE NEW, DESIRABLE, FOOD ITEMS CIRCLED. If you shop at Krogers, circle the actual items, otherwise circle the cost and indicate the items alongside. 100 points
3. Decide which of the following three behavioral problems has the most negative consequences to your eating behaviors, specific times, specific outside cues, specific feelings. Using this week's lesson, apply a behavioral strategy to correct the problem. 100 points
4. Walk briskly 20 minutes per day for four days. Keep your heart rate at 50% maximum. 100 points

-----  
I earned the following points for the third week:

1.-----2.-----3.-----4.-----

Total points-----

SIGNATURE-----

Food item	Calories	GMS Protein	GMS Fat	GMS CARBS.
Breakfast {				
Snacks				
Lunch {				
Snacks				
Dinner {				
Snacks				
* Meals + Snacks, Totals → (From figures given for each food item)	Total gms →	x 4	x 9	x 4
* Note - you can total each meal to help you balance and plan - of course the important totals are the breakdown of proteins, fats, carbohydrates, and the total for the day. Your 2 totals will vary slightly as an artifact of calorie estimation from proteins, fats, etc.	Total → calories (Breakdown to major food types)			Total for the day → (from major food groups)

## FOURTH WEEK

## CONTINUING APPROPRIATE EATING BEHAVIORS

Here is a review and some new facts about desirable eating behaviors:

While you probably will never want to become a vegetarian, you can learn a great deal from their diet. Vegetarians can get most or all their protein by eating combinations of vegetable foods that give them adequate protein sources. To understand this one must understand something about proteins. Proteins are made up of combinations of amino acids. There are 22 amino acids, of which we can manufacture all but nine in our bodies. These nine, called ESSENTIAL AMINO ACIDS, we must obtain from our food. Most animal flesh contains essential amino acids, but plant material tends to be missing essential amino acids so that plant proteins are INCOMPLETE. Taken one at a time, vegetable proteins, then, cannot be used effectively by man. For example, the vegetable protein in rice alone lacks the essential amino acids that would make it a COMPLETE PROTEIN that we could use. BUT IF RICE IS MIXED WITH, FOR EXAMPLE, BEANS, THE MIX PROVIDES A COMPLETE PROTEIN. THE COMPLEX CARBOHYDRATES, THEN, WHEN MIXED IN VARIOUS WAYS, PROVIDE ADEQUATE AMOUNTS OF PROTEINS.

So, you can obtain excellent recipes for complex carbohydrate foods AND some good, vegetable protein sources from vegetarian cookbooks. These recipes take into consideration the fact that single complex carbohydrates, like JUST RICE for example, can't provide humans with usable protein unless we mix in some animal protein (meat) or some other complex carbohydrate like wheat, beans, or sesame seeds. For our purposes, these RECIPES ARE HIGH IN COMPLEX CARBOHYDRATE. Furthermore, by adding a small amount of meat you will be sure to make the vegetable protein usable. Thus by decreasing meat and increasing complex carbohydrate, you also obtain LOW-FAT VEGETABLE PROTEIN.

If you are getting too much fat BECAUSE YOU EAT TOO MUCH FATTY RED MEAT AND FRIED MEAT PROTEIN, eat more complex carbohydrates. You will still obtain adequate protein, AND READILY REDUCE FATS TO 30%!

Use techniques like eating 4 ounces of steak at a meal instead of half a pound. Use a few ounces of minced country ham in bean soup instead of eating two thick slices. This is an excellent way of eliminating fats. Replace the extra steak with bulky complex carbohydrate. Remember, complex carbohydrates include grains (wheat, oats, barley, rye, corn, rice), beans and peas, white potatoes and sweet potatoes.

Books which deal with vegetarian and high complex carbohydrate cooking include: "Diet for a Small Planet" by Frances Lappe (Ballentine paperback), "Moosewood Cookbook" by Mollie Katzen, and "The Enchanted Broccoli Forest" by the same author.

Evaluate each recipe as you use it, and don't hesitate to modify them to decrease fats. For example, Katzan's Galician Garbanzo Soup from the second book may be modified by using canned beans instead of dried, by adding some minced country ham, and/or using chicken broth. You may also wish more potato than she calls for, or you may omit tomatoes or celery. Use your new dietary knowledge to guide you.

Here is a bean soup recipe which incorporates some of the dietary modifications we have discussed:

PASTA E FAGIOLI (Pasta Fazool), Italian Bean Soup

Soak 3 cups dried beans (big limas or white beans) overnight OR cover with water, bring to a boil, turn off stove, cover, and let sit for 1 hour until softened. Drain and discard water. Put beans in a big pot, add 10 cups water and bring to a boil. Add 1 tablespoon salt, a hamhock or two, some chopped onion & garlic, 1 tsp basil & a half tsp oregano. Add a LITTLE minced pepperoni if you wish. Simmer, covered, until beans are tender (about 3 hours). Add one medium sized can of tomato sauce. Add about 2 cups of cooked elbow macaroni and remove from the heat. Serve sprinkled with grated parmesan cheese. We don't seem to get much fat coming off the hamhocks (which we don't eat), but a fat-free method would be to make ten cups of stock by boiling the hamhocks first. In cold weather you can then remove the hamhocks and set the stock out on the back porch (covered so animals don't get into it) to let the fat solidify on the surface. Remove the thin layer of fat and add stock to the beans. Continue as above. This recipe will make a big meal for four people.

\* A review of information about protein. All protein is made of combinations of amino acids. There are 22 amino acids in all, and we can manufacture all but 9 of them in our own bodies. Plant proteins are incomplete, as they lack one or more of these 9 ESSENTIAL amino acids. Animal proteins are generally complete, for they tend not to lack any of the essential amino acids. Different plant sources lack different essential amino acids, so if we mix for example, beans with corn, rice, wheat, barley, or oats we get a complete protein (the amino acids of the beans and corn, are different and they COMPLEMENT one another, that is they add up to a complete protein. Thus Mexicans get a complete protein by combining a tortilla (corn) with beans. Similarly, we can combine black-eyed peas with rice for a complete protein!

If you eat a near vegetarian diet it may be important for you to eat just a LITTLE red meat or cheese, skim milk, or chicken, or fish to be sure you are getting adequate protein. BE SURE TO KEEP THE FAT LEVELS DOWN to 30% or a little less!

For more information on nutrition read "Jane Brody's Nutrition Book", published by W. W. Norton and Co. Any good bookstore will order this or other books for you.

## FIFTH WEEK

Review: This program is geared to help you correct a lifetime of faulty eating habits and inadequate exercise behavior. If you have followed the program thus far you have completed the following assignments:

1. Monitored your base-line caloric intake.
2. Corrected your caloric intake of fats, proteins, and carbohydrates. At present you should be ingesting more fruit, vegetables, and starchy foods, less red meat and other fatty foods.
3. Reduced your caloric intake by 250 to 700 calories per day.
4. Begun an exercise program of walking or some equivalent exercise. At present you should be exercising 30 minutes, four days a week, at 50% maximum heart rate.
5. You should also be using behavioral techniques of avoidance, narrowing, substitution, self-reward, meal planning, and assertive behavior with family and friends to minimize faulty eating and exercise behaviors and maximize preferred activities.
6. Finally, you should be carrying out the assigned homework and perhaps some of the optional tasks in this program.

READ OVER THE ABOVE LIST CAREFULLY. IF YOU ARE NOT CARRYING OUT THESE BEHAVIORS YOU ARE NOT REALLY IN THIS PROGRAM. THAT IS, YOU ARE STANDING ON THE SIDELINES AND WATCHING THOSE WHO ARE REALLY WORKING TO CHANGE THEIR FAULTY BEHAVIORS.

Think for a moment. Changing a lifetime of faulty eating and exercise behaviors is very difficult. It is at least as hard as, for example, learning enough French to conduct simple conversations, or learning enough ballet to have a small role in a company production. Either of these achievements would take at least one year of intensive effort and constant practice! IF YOU ARE ONLY STANDING ON THE SIDELINES YOU WILL NOT CHANGE FAULTY BEHAVIORS. YOU MUST BECOME A PART OF THE PROGRAM OR YOU WILL CERTAINLY FAIL!

Fifth Week: THIS IS A CRITICAL WEEK FOR ALL OF YOU WHO HAVE BEEN IN THE PROGRAM! This is the week when your exercise will begin to provide an AEROBIC effect. Many of you have lost little or no weight to date. Beginning this week, if you have carried out the eating modifications listed above, you will begin to notice positive changes in your body-weight and/or your body measurements. Due to the loss of fat and increase of muscle tissue your hips, waist, and thighs will decrease in size EVEN THOUGH YOU MAY NOT LOSE WEIGHT AT FIRST (MUSCLE WEIGHS MORE THAN FAT). After a week or two more of this aerobic level of exercise you WILL begin

to lose weight. If you do not lose weight you can monitor your caloric intake again to see if you have truly reduced your calories. If necessary you can make a downward adjustment.

It will be important for you to ingest ENOUGH calories to maintain your strength and muscle growth at this time. STRONG MUSCLES will allow you to carry out the high level of exercise NECESSARY TO BRING ABOUT WEIGHT LOSS. We have stressed the importance of your constructing your OWN diet. We have warned against reducing your caloric intake TOO MUCH. It will be up to you to find the proper balance at which you lose weight. One pound a week is plenty.

We have also encouraged you to produce your own exercise program, substituting aerobic dance, jogging, swimming, stretch classes, yoga, or karate for example. Rapid walking in a pool or stationary cycling may be substituted by individuals who need to reduce the stress on their knees or hips. But remember that none of these will work for you UNLESS YOU GET INTO AN AEROBIC MODE. YOU MUST GET YOUR HEART RATE TO 60% MAXIMUM FOR AT LEAST 30 MINUTES, FOUR DAYS A WEEK.

Which will you do? INITIAL ONE.

1. Yes, I am in the program and will continue to work hard.
2. I will get back into the program and work hard from now on.

GOAL FOR THIS WEEK: To earn 400 points

1. Exercise by walking briskly 30 minutes per day for four days. KEEP YOUR HEART BEAT AT 60% MAXIMUM. 200 points
2. Maintain proper eating behaviors by CAREFULLY MONITORING EVERYTHING YOU EAT, BY CAREFULLY LIMITING FATS, and by RESTRICTING CALORIC INTAKE. 200 points

-----  
I earned the following points for the fifth week:

- 1.-----
- 2.-----

Signature-----

## SIXTH WEEK

Relapse into undesirable behaviors: As we stressed last week, you should now be far enough along in this program to be burning off fatty tissue through your DIET AND EXERCISE ACTIVITIES. By now the program should be easy for you, but you must guard against the dangers of RELAPSE INTO UNDESIRABLE BEHAVIORS AND SABOTAGE. Everyone relapses off from time to time. You may ingest fatty and sweet foods for several days, or you may miss exercise for a whole week. When you have relapsed, the tendency will be to say, "Oh, I've blown it now and I'm still 26 pounds overweight, I might as well give up!"

All is not lost: When you relapse you are only being human. Remember, YOUR NEW, HIGHER METABOLIC RATE IS NOT GOING TO SLOW DOWN OVERNIGHT. Even if you relapse for a week or two you probably have not lost as much as you think. Also, NOW YOU UNDERSTAND THE BEHAVIORAL CONTINGENCIES NECESSARY TO LOSE FAT.

Renew desirable behaviors: Remember that you can reinstitute weight loss behaviors in JUST ONE DAY! Your goals are to carry out desirable behaviors ONE DAY AT A TIME. IF YOU MAKE THIS DAY A TOTAL COMMITMENT TO PROPER DIET AND EXERCISE THAT'S ALL YOU NEED TO DO! So if you've relapsed just evaluate your negative behaviors and substitute behaviors that will lead to positive weight control results today. Remember, weight control is accomplished one day at a time!

Rewards: Remember to reward yourself. Even though your diet-exercise program is a reward in itself, YOU ARE MAKING SOME MAJOR BEHAVIORAL CHANGES IN YOUR WAY OF LIVING. You should be rewarded for that! Rewards could include a new pair of walking shoes, a new outfit, or a hair-styling. Buy a good book on health, beauty, yoga, whatever is most appropriate.

The goal is daily problem solving: Behavioral changes are difficult. They require constant DAILY EFFORT. Your goal DOES NOT LIE IN THE FUTURE. Rather, your goal is to be the kind of person you want to be, ENJOYING the new life you are making for yourself.

Sabotage: Behavioral changes affect both ourselves and the people around us. You may find that your behavior change progress may cause anxiety and negative responses in you or the people close to you. For example, you may feel threatened by losing weight. You may find that, as you lose weight, others will direct more demands toward you. You may feel more sexual attention being paid you by men. Your husband, children, etc. may feel uncomfortable with your new appearance. Or, you may find you feel there are fewer problem situations with parents, children, or spouses when you are heavier. People in your life may be unhappy with the time you are spending with your exercise, or your diet may not appeal to them. Your best friend feel threatened when her husband comments on the results of your program. If some of these things are happening to

you, just remember that you are still the same person and it may just take a little while for you and others to be comfortable with your new behavior patterns.

Goals for the sixth week:

1. Each day keep notes on your day's DIET AND EXERCISE. Indicate your relapses and where you are committed. Use all the behavioral contingencies you have learned. BRING THESE NOTES AND TURN THEM AT THE NEXT MEETING. Try to use all your new behaviors. 200 points.
2. Exercise is the key to this program. Use the dietary knowledge you have gained and cutting calories is good, but to lose weight YOU MUST EXERCISE IN ORDER TO MAKE THE DIET WORK. This week we will be solidly into an aerobic mode of exercise. Walk at 60% maximum heart rate for 40 minutes for four days. 200 points.

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I earned the following points this sixth week:

- 1.-----
- 2.-----

Signed-----Date-----

## Seventh Week

By now many of you are starting to lose weight by losing fatty tissue. Just as importantly, you are developing muscles that will make your body stronger and functionally better able to carry out necessary exercise. By losing fat and developing your strength and endurance you are programming your body for continuing a healthy life of correct diet and exercise. HERE ARE SOME OF THE IMPORTANT FACTS YOU SHOULD HAVE DISCOVERED DURING THE PAST SIX WEEKS.

**TIME:** It has taken time to make the progress most of you have made. BUT SLOW GAINS ARE CHARACTERISTIC OF THIS TYPE OF DIET-EXERCISE LIFETIME PROGRAM. You have STARTED EATING A MORE BALANCED DIET; you have made RELATIVELY SMALL, SENSIBLE REDUCTIONS IN YOUR CALORIC INTAKE; you have INCREASED YOUR METABOLISM BY NECESSARY AEROBIC EXERCISE; you have MAINTAINED YOUR STRENGTH AND MUSCLE; and, best of all, YOU HAVE DONE IT THROUGH YOUR OWN SELF CONTROLLED IMPOSITION OF NEW BEHAVIORS.

**YOU ARE RESPONSIBLE:** It is important that you take a lot of the credit for whatever behavioral changes you have made. Remember, YOU HAD TO MONITOR, YOU HAD TO CONSTRUCT YOUR OWN DIET, YOU HAD TO DEVELOP AN AEROBIC EXERCISE PLAN, AND YOU HAD TO CARRY OUT ALL THE BEHAVIORAL CONTINGENCIES! Take the credit for that. Give yourself an appropriate reward!

**THE GOALS:** ABOVE ALL, YOU MUST HAVE DAILY BEHAVIORAL GOALS. If you succeed in your new daily behaviors, the long-term goals will also be met.

**THE FUTURE:** You have learned how new behaviors can change your body. We will be meeting next week, and then every two weeks for the two following meetings, then, finally, once a month for the last three months. You WILL be getting new information and help for the next four months, but what if you have to leave for the summer, or what if you need help between meetings? HERE ARE THE SIMPLE RULES YOU MUST FOLLOW: 1. Count calories if you think you are slipping into maladaptive behaviors, reinstitute appropriate behaviors. 2. You can always use exercise to start burning fat again if you reach a point of no weight loss. Just remember to keep caloric intake at a point below your maintenance level. 3. YOUR PROGRAM WILL NOT WORK IF YOU FAIL TO ATTAIN AN AEROBIC LEVEL OF EXERCISE, AT LEAST 60% MAXIMUM HEART RATE! 4. Use your new behavioral techniques to control eating at the problem times, places, and situations. Be constantly aware of sabotage! USE DAILY GOALS!

**WHAT IF YOU ARE NOT MAKING GAINS:** Just as you can take credit for gains, you must take responsibility if nothing is happening. Ask questions of yourself and be honest with the answers: Are you really complying with the program TOTALLY? Are you really EATING AN APPROPRIATE DIET? Have you really reduced caloric intake? Are you really EXERCISING AEROBICALLY FOUR TIMES A WEEK FOR 40 MINUTES AND 60% MAXIMUM HEART RATE? Complying with "part" of the program

## WON'T WORK!

THIS IS THE SECRET: The secret of weight control is that THERE IS NO SECRET. THERE IS NO "QUICK FIX," NO "MIRACLE DIET." SOME OF YOU WILL NOT BELIEVE THIS AND WILL PERSIST IN YOUR SEARCH FOR THE AMAZING NEW DIET THAT WILL TAKE THOSE POUNDS OFF YOU. Others will slowly make changes in your behaviors that will allow you to slowly burn off excess fat. A half pound a week yields 25 pounds in a year. If you had started this program a year or two or three ago - where would you be today? Where will you be in a year or two or three from now?

At this point you should be TOTALLY compliant with the program. From now on in we will be discussing specific problems and helping you with relapses and sticking points. The problem area for this week concerns salads. Never eat ONLY salads. You won't get adequate protein or carbohydrate with most of them, but you may get a HIGH PERCENTAGE of fat in the form of salad dressing. Salads are good for the fiber, minerals, and vitamins they provide, but they must be accompanied by carbohydrate and a modest amount of protein.

MEETINGS THIS SUMMER: PLEASE REMEMBER THAT WE WILL BE MEETING 6 MORE TIMES. HERE ARE THE DATES. At the end of the sixth meeting you will receive a refund of your \$10 deposit!

#8 Tue 11 June or Thurs 14 June

#9 Tue 25 June or Thurs 27 June

#10 Tue 9 July or Thurs 11 July

#11 Tue 5 Aug or Thurs 8 Aug

#12 Tue 10 Sep or Thurs 12 Sep

#13 Tue 8 Oct or Thurs 10 Oct

MARK THESE IN YOUR CALENDAR! TIMES WILL REMAIN THE SAME! ALWAYS COME TO YOUR GROUP, NOT ANOTHER GROUP!

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Goals for the seventh week:

1. Exercise will be critical in your new lifestyle. Exercise aerobically for 40 minutes four days a week at 60% maximum heart rate. 200 points.

2. Practice balancing your extra fats and sugar with extra complex carbohydrates, fruit, and vegetables. Keep a list each day of your balances (for example, if you eat an ice cream cone show how you make up for the extra sugar and fat). Keep your daily notes simple, but earn 200 points!

W.A.C.

Information we need to get this seventh week:

1. Weigh-in -----
2. Skin fold-----
3. Retest with weight control quiz
4. Are you going away for the summer?-----.

    If so, will you be back in the fall?-----.

5. Have you been on any "diets" during this program (other than what we have presented? If so, which one? For what part of the program?

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## EIGHTH WEEK

Congratulations. You have completed the first eight weeks of a life-change weight control program. To review, there have been several phases to this program:

1. Education. We have taught you about the basic food categories and how to balance them for a healthy diet.
2. Dieting. We have shown you :how you can monitor your own caloric intake, evaluate percentages of basic food categories, and restrict your caloric intake in a reasonable way.
3. We have given you ideas about problem areas and some behavioral contingencies to deal with them.
4. We have given you an exercise program that will keep your metabolism high enough to burn fatty tissue.
5. We have given you various homework assignments designed to reinforce your new behaviors.

Changing the behaviors of a lifetime is VERY difficult. But it is working for this group. Preliminary analysis of weight data in two groups shows an AVERAGE weight loss of 2.1 pounds in the past three week period. Only one (of 16 individuals weighed) did not lose weight! This AVERAGE weight loss, if continued over a year, would be 36 pounds! But many of you don't need to lose that much! And some of you need to lose more! Several individuals lost 6 or more pounds in three weeks. That's an average of over 100 pounds in a year! WE HOPE THESE DATA ENCOURAGE YOU TO WORK EVEN HARDER. Weight control is VERY HARD AT FIRST! New habits are hard to form. You all are to be congratulated for what you have done to impliment your diet-exercise programs!

If your progress to date has not been satisfactory YOU MUST RE-EVALUATE your participation in the program. Recent homework suggests that some of you are reverting to maladaptive behaviors TOO FREQUENTLY. Yes, you can eat icecream, candy, chips, and hamburgers, BUT YOU MUST BALANCE THEM THESE HIGH FAT FOODS WITH HIGH COMPLEX CARBOHYDRATES. Too frequently some of you have eaten high fat food and then reduced your caloric intake drastically to "make it up." Thus, you are still eating your old, high-fat diet at a lower intake level. This will not work. You MUST balance your diet, for you can't make the high fats go away by reducing caloric intake. That is the old, maladaptive way that will just cause you to rebound!

In spite of some problem areas, YOU NOW ALL KNOW HOW TO MAKE PROPER DIET AND EXERCISE WORK FOR YOU. Your task for the next two weeks will be to make them work each hour of each day!

Food tips for the next two weeks:

1. Set a goal to eat two apples each day. They will serve to fill you up and prevent you from eating junk food. They are also rich in fiber and have enough sugar to provide you with energy.
2. Thirsty? Drink 8 ounces of ice water instead of a cola or other beverage. Drinking water will keep you away from the temptation of the vending machines or the snack bars. Also, it's a healthy habit to form.
3. Even if you have to cook dinner for a hungry family you probably can arrange to have breakfast and lunch alone. These are the meals you can KEEP SIMPLE and high in complex carbohydrate. Set a schedule for the next two weeks. For example, toast, a poached egg, and skim milk for breakfast, and taboule salad in a half pita for lunch.

Low Fat Taboule recipe: Buy a box of bulghar wheat (Annie Kays has it).

1. Combine one cup of bulghar wheat with 1 1/2 cups of salted boiling water. Cover and let stand 20 minutes.
2. Add approx. 1/4 cup lemon or lime juice, crushed garlic to taste, 1/2 cup chopped scallions, a couple teasp. of fresh mint, 2 chopped tomatoes, (optional, chopped cucumber, chopped green pepper, grated carrot). Modified from original recipe in Moosewood Cookbook. This is something you can change to suit your taste. Chill and fill a half pita with taboule. Chewy and filling.

or,

Have two weeks of lunches of slices of whole grain bread, sliced fruit garnished with the chopped meats of four walnut halves, two small chunks of cheese, and a large glass of skim milk. Remember to EAT ENOUGH to keep your total caloric intake UP to 1500 or so calories per day. DON'T STARVE.

ABOVE ALL, continue your exercise routine. YOU MUST EXERCISE at least 40 minutes per day at at least 60% maximum heart rate four days a week to make your diet work. When you have reached your target weight you may increase your caloric intake, but continue your exercise!

REMEMBER TO CIRCLE THE NEXT MEETING IN YOUR CALENDAR, TUE 25 JUNE, OR THURS, 27 JUNE. YOUR MONITORING AND POINT TOTALS ARE NOW UP TO YOU!

TWO WEEK PLAN

Days and hours for exercise:

Day:                   Hours:

Problems to overcome due to vacations, etc.:

Diet for two weeks:

Problem areas (parties, etc.)

Weight control goals for two weeks:

## TENTH WEEK

Maintaining weight loss behaviors: By now some of you have lost 12 to 15 pounds of fat. Others have made smaller, but equally positive fat reductions. BUT ALSO, SOME OF YOU ARE BEGINNING TO HAVE TROUBLE CONTINUING YOUR WEIGHT CONTROL BEHAVIORS!

Behavior change is difficult: This may be one of the hardest tasks you ever undertake. It sounds simple, CHANGE YOUR DIET, REDUCE CALORIC INTAKE, ENGAGE IN AEROBIC EXERCISE. DO THESE THINGS DAILY, ONE HOUR AT A TIME! But many of you have discovered how difficult it can be to change the habits of a lifetime.

Again, remember that your goals must be one day at a time, even one hour at a time. If you are getting discouraged because you haven't lost a single pound in three weeks think about this: Think how eating a healthy diet may be improving your overall health. Think how your exercise is firming you up and making you a stronger, healthier person. Review your program and pinpoint your inappropriate behaviors. YOU NOW HAVE ALL THE BEHAVIORAL INFORMATION NECESSARY TO LOSE AND CONTROL YOUR BODY FAT! Review and correct your eating and exercise behaviors and continue with your daily and hourly goals!

Weight control tip: Exercise can be used to overcome the effects of temporary inappropriate eating behaviors. Probably the easiest weight control technique you can use is exercise. Have you fallen back into the maladaptive habits of eating high calorie foods all day and then trying to make up for it by ADDING a cup of yogurt ON TOP OF ALL THE FAT AND SUGAR? Are you starting again to ingest large amounts of fried chicken and ham? Are you finding that instead of sticking to the program you are using the passive "yes, but ..." technique to explain away bad behaviors ("Well, I did real well at breakfast, but ..." or, "Well, I'd like to get out and walk, but...").

One way to start losing fat again is to double or triple your exercise level in order to reactivate your metabolism. Now that warm summer weather is here it's easy to achieve an aerobic level of exercise. If it gets too hot for you try exercising at night. If you have maintained your exercise program, EVEN IF YOU'RE NOT STILL MAINTAINING THE SUGGESTED DIET, you can easily start losing again. Are you thinking, "yes, but ..."? Just remember, you are either carrying out the program activities and practicing new behaviors or you are not. In terms of weight control YOU WILL ONLY GET OUT OF THIS PROGRAM WHAT YOU PUT INTO IT.

For the next two weeks continue your weight control diet and maintain 40 minutes of aerobic exercise at 60 % maximum heart rate four times a week.

REMEMBER OR NEXT MEETING DURING THE WEEK OF 8 JULY! MARK YOUR CALENDARS. WORK HARD WHILE THE WEATHER IS GOOD!

## TWELFTH WEEK

You have been dieting and exercising now for three months. You have worked hard to make this program work for you. Let's consider what you might expect to have achieved in the program thus far:

If we begin with an hypothetical weight control subject 50 pounds over-fat, we might expect to see the following results, problems, etc.:

1. Many subjects tried too hard, dieted too severely, and exercised too strenuously. If our subject passes through these set-backs we might expect her to be presently walking briskly for 40 to 50 minutes, four days a week and eating a reasonable low calorie diet which maintains a slow, steady weight loss.
2. Our subject may have had to make several major changes in daily routine and diet of the family. Such changes may have brought about a certain amount of family friction, readjustment, and compromise.
3. Our subject may have discovered various ways of combatting the sabotage which we learn to expect from ourselves and others. By applying various behavioral strategies she has largely overcome this sabotage.

Today our hypothetical subject might easily be 16 pounds lighter than she was three months ago. She is one third of the way to her "ideal" weight goal. Her resting heart rate has dropped from 80 to 70 and her figure has changed much more than her weight loss would indicate because she has built healthy muscle at the same time she has lost excess fat. She reports feeling better and takes pride in her ability to perform sustained exercise four times a week. She is completely capable of controlling her body weight by diet and exercise.

Here are two recipes recently published by Redbook. These are the sort of low-calorie meals you should be eating routinely:

1. Summer chicken salad: Combine 1 1/2 cups cubed, cooked chicken, 1/2 cup finely chopped water chestnuts, 1/2 cup seedless grapes, 1/2 cup chopped celery. Heap on a bed of fresh lettuce leaves. Pour over a dressing of 1/3 cup low cal mayonnaise, 2 tablespoons white wine vinegar, 1 tablespoon curry powder, 1 teaspoon ground ginger, and 1 teaspoon grated or dried onion.

2. Vegetable pizza: Top a half toasted English muffin with a mix of 1/4 cup chopped mushrooms, 2 tablespoons chopped sweet green peppers, 2 tablespoons chopped onion, 2 tablespoons tomatoe sauce. Heat in oven at 350 a few minutes till "bubbly" hot. Add shredded mozzarella cheese (jack cheese will do also) and continue heating till cheese melts.

NEXT MEETING, WEEK OF 5 AUGUST. MARK IN IN YOUR DATE BOOK!  
MEANWHILE YOU KNOW WHAT YOU MUST DO TO CONTINUE CONTROLLING YOUR WEIGHT.

## OTHER MATERIALS

In addition to the foregoing materials, all subjects were given calorie counting charts from McArdel, Katch, and Katch (1981, pp 449-477) and from Stuart and Davis (1972, pp 219-235).

APPENDIX H

## MODERN WEIGHT CONTROL

## I. The diet question

- a. Your metabolism will change to accomodate a low calorie diet!
- b. Fat, what you want to lose; muscle, what you want to keep.
- c. Diets and the rebound effect.

II. Diets alone often cause you to lose weight and get fat!  
Dieting is NOT weight control.

## III. Eating better. FIRST STEP IN WEIGHT CONTROL. Most Americans eat too much fat, not enough complex carbohydrates.

- a. Monitoring your present food intake, % of totals.
- b. How to eat better, 12-15% protein, 30 % fat, 55% carbohydrate
- c. sensible cut-backs for weight loss (200-700 calories).

## IV. Burning fat through physical activity.

- a. Physical activity, the SECRET to weight control.
- b. Getting your heart rate to 60% of maximum for 40 minutes, four times a week.
- c. Brisk walking will do, also aerobics, etc.

## V. Problems.

- a. IT'S HARD TO CHANGE A LIFETIME OF BEHAVIOR!
- b. Dealing with temptation.
- c. Sabotage.

Modifying your life to control your weight is an hour to hour, day to day activity. The primary goals must not be 10 or 15 pounds lost, but rather the 40 minutes of brisk walking, the apple rather than the doughnut, the boiled potato rather than the french fries, and the portion of meat only 1/3 the size of your pre-change serving. The goals are eating less fat and sugar and more complex carbohydrates. It's not the potatoes than make you fat, it's the butter and sour cream.

\*Suggested paperback readings:

Covert Bailey, s , "Fit or Fat?"

Martin Katahn's, "The 200 Calorie Solution"

## KEEPING YOUR HEART RATE AT A SAFE AND HEALTHY LEVEL

In order for your walking to have a "fat burning" effect you need to keep your heart beat at a safe and healthy level. If you push too hard it will not be good for you. If you do not have a refreshing, brisk, walk, however, it will not have the desired effect of burning fat calories while you rest.

Here's how to determine the proper rate for you.

1. Practice taking your pulse by determining your resting pulse rate. Use several samples in order to be accurate. You can take your pulse at your wrist or by pushing LIGHTLY against your throat above a carotid artery. You will be asked to do this in class.
2. Figure your MAXIMUM heart rate by subtracting your age from 220 if you are a woman (half your age from 205 if you are a man). Thus a woman 50 years old would have a maximum heart rate of 170. See the chart below FOR WOMEN.
3. To figure your 50% or 60% rate just multiply your MAXIMUM rate by .50 or .60. For example, .60 times 170 equals 102. Thus, if you are a 50 year old woman wanting walk at a 60% rate, you would want to walk briskly enough to get your heart beating 102 beats per minute (but not more). A 30 year old woman would have a 60% rate of 114, and a 20 year old woman would have a rate of 120. See the chart below.

Age	Max h.r.	50% level	60% level	70% level
20	200	100	120	140
25	195	97	117	137
30	190	95	114	133
35	185	93	111	130
40	180	90	108	126
45	175	88	105	123
50	170	85	102	119
55	165	83	99	116
60	160	80	96	112
65	155	78	93	108

## EATING THE VERY BEST



hamburgers  
 hotdogs  
 all deep fried foods  
 frenchfries  
 fried chicken  
 ham  
 sausage  
 all red meat  
 whole milk  
 icecream  
 eggs  
 cheese  
 nuts  
 all chips  
 sour cream  
 all cookies  
 pies  
 pastries  
 doughnuts  
 lard  
 butter, oil  
 mayonnaise, oily dressings  
 chocolate



skim milk  
 chicken, skinned, white meat  
 fish (not fried)  
 clams, crab, oysters  
 shrimp, tuna in water  
 all beans, split peas  
 lentils  
 green vegetables  
 carrots, cauliflower  
 all squashes  
 potatoes (boiled or baked)  
 leafy vegetables  
 grains corn, oats, wheat)  
 melons  
 all fresh (or frozen) fruit  
 all fresh (or frozen) berries  
 macaroni, spaghetti, noodles  
 rice  
 low cal soft drinks  
 low cal salad dressings  
 raw fruits etc. as desserts  
 garden fresh vegetables  
 unsweetened fruit juices



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THE EFFECT OF A VERBAL FRAMING VARIABLE  
IN A WEIGHT CONTROL PROGRAM

by

Lowell P. Thomas

(ABSTRACT)

Two versions of a six month weight control program were developed. A "behavioral" version used traditional behavioral terminology. This program was then modified to produce a "vivid" program using anecdotal material and examples drawn from the community. Terminology in the vividly framed program was reduced to positively framed "common language." For example, "dieting" was replaced by "eating better," and "exercise" by "pleasant physical activity." Seventy-four women then participated in either vividly or behaviorally framed programs. Anthropomorphic and demographic data initially obtained included height and weight, body mass index, weight goals, and marital and employment status. Subjects attended sessions which met at 5 p.m. or 6 p.m. Meetings were held weekly for seven weeks, bi-weekly for a month, and monthly until the end of the six month program. Major variables of interest included attendance, compliance with assignments, changes in total weight and changes in weight reduction quotients.

Evaluations of the outcome variables revealed no effect for the verbal framing variable. It is suggested that either verbal framing has little effect in weight control or the level of framing used was ineffective. Other variables, however, appeared to influence outcomes. Self selection took place, with the younger, unmarried women filling the two 6 p.m. groups while older, married women filled the two 5 p.m. groups. Subjects who came closest to achieving their weight goals were the younger, lighter women. Neither attendance nor compliance with assignments were predictive of weight goal attainment. It is suggested that older individuals who have been overfat for many years might best concentrate on healthy eating habits and not set difficult weight goals. Alternatively, younger, less chronically overfat individuals might be better able to benefit from diet-exercise programs and specific weight loss goals.