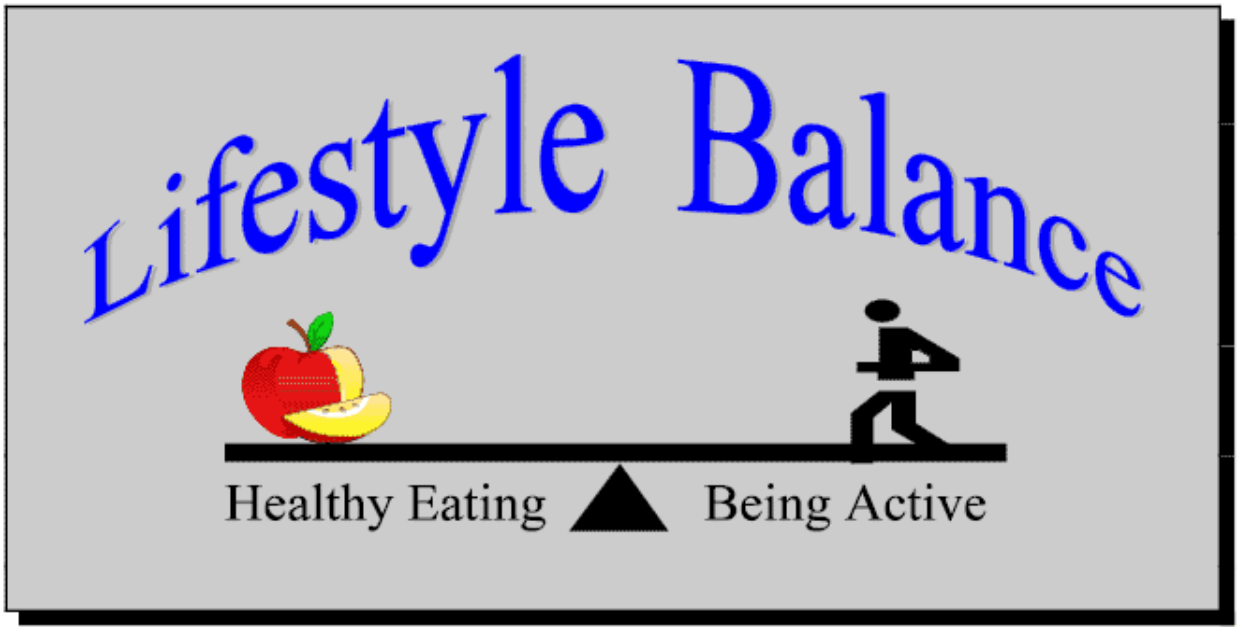

The Diabetes Prevention Program's
Lifestyle Change Program

Section 5: Overview of Strategies to Achieve the Weight Loss Goal

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5.1. Achieving the Weight Loss Goal

Participants in the lifestyle intervention should try to achieve the 7% weight loss goal within the first six months after randomization and then maintain their weight loss for the remainder of the study. This recommendation is based on several factors. First, a 7% weight loss equals a weight loss of 7 to 21 pounds (the latter occurring in individuals weighing 300 pounds). These weight losses can be achieved within 24 weeks at a reasonable rate of 1 to 2 pounds lost per week. In addition, in previous weight loss studies and clinical trials of dietary intervention, the maximum weight losses achieved were reached by six months. Finally, the purpose is to achieve the weight loss goal as soon as possible after the study starts to try to prevent the onset of diabetes; a slower rate of weight loss may increase the risk of diabetes onset.

If participants do not achieve the weight goal within six months, they will be encouraged to achieve it as soon as possible thereafter.

5.2. Self-Monitoring Weight

To help participants achieve and maintain the weight loss goal, all participants will be weighed at every face-to-face lifestyle intervention session, beginning with Session 4 or 2, Be a Fat Detective. Participants should be weighed in private at the beginning of the session. Weight can be taken with either a balance beam or a digital scale. The type of scale is not important, but an effort should be made to use the same scale throughout the study. Participants should be weighed in light-weight, indoor clothes, without shoes.

The Case Manager will record the weight on the DPP Lifestyle Intervention Data Form and on the weight graph in the participant's notebook. Participants should be encouraged to complete the weight graph themselves, if possible. The Case Manager and participant should discuss the participant's weight in relation to the 7% weight loss goal, and the Case Manager should continually encourage the participant to achieve the 7% weight loss goal.

In addition to being weighed at every face-to-face session, all lifestyle participants will be encouraged to weigh themselves at home at least weekly and record their weight on the back of their self-monitoring booklets. Participants should be instructed to weigh themselves on the same day(s) of the week and at the same time of day (for example, on Monday mornings), and the Case Manager should indicate this schedule on the back of the self-monitoring records.

At the beginning of the intervention, Case Managers may want to assign more frequent self-monitoring of weight, for example, daily, and continue to encourage it if the participant finds it helpful. Some participants may respond to frequent fluctuations in their weight by becoming discouraged. However, the Case Manager can use a participant's record of frequent ups and downs in weight to teach the participant to focus on **trends** rather than on single values and to

respond promptly to slips with positive behavior changes until the results are seen consistently on the scales. In this way, frequent self-monitoring of weight can become a source of encouragement to many participants.

5.3. Setting a Fat Intake Goal

To help participants achieve and maintain the weight goal, all lifestyle participants will be given a goal for daily total fat intake in grams. The initial focus is on total fat rather than calories for several reasons. A focus on total fat is designed to accomplish a reduction in caloric intake while at the same time emphasizing overall "healthy eating" instead of a restrictive "diet" for weight loss alone. Focusing on total fat also simplifies the message and streamlines self-monitoring requirements. Although the caloric density of fat is stressed from the beginning of the dietary intervention, calorie balance is formally introduced only after 7 or 8 weeks into the program. This delay is designed to allow time for the participant and interventionist to determine whether self-monitoring of fat and increasing physical activity is sufficient to achieve weight loss.

At any time during the study, participants who are interested in monitoring both calories and fat should be given both a fat and calorie goal and encouraged to monitor both aspects of the diet.

The fat goals have been calculated based on 25% of total calories from fat, using a calorie level estimated to produce a weight loss of 1 to 2 pounds per week (described in detail below). The various fat gram levels were then collapsed into one of four goals: 33, 42, 50, or 55 grams of fat.

A level of 25% of calories from fat was selected because it is believed to be effective, safe, and feasible. In the Women's Health Trial, a low-fat dietary-intervention trial, more than 80% of the intervention group had met their fat gram goal, calculated as 20% of baseline calories, within 3 months of randomization and maintained that goal through the end of the trial at 3 years. Although women in this study were not encouraged to decrease energy intake or lose weight, the reduction in fat intake was associated with a 25% reduction in total calories and a weight loss of 3.1 kg after 1 year. Weight loss was more strongly associated with change in percent energy from fat than with change in total energy intake.

All participants are to be given a fat intake goal, but it should be recognized that not all participants will immediately achieve this goal. For example, a participant who eats 40% of their calories from fat may initially find it difficult to achieve the 25% goal and may first reduce to 35% fat and then to 30% fat. However, the participant should be assigned the 25% fat goal, and all progress toward reaching this goal should be praised.

Lowering fat to a specific level is used in this study as a means to achieving the weight loss goal, rather than as a goal in and of itself. Thus, if a participant is consuming more than 25% of calories as fat, but is achieving the weight goal, and does not have hyperlipidemia (see Protocol), there is no need to focus on greater reductions in dietary fat.

Table 5.1. DPP Lifestyle Intervention Fat and Calorie Goals*

Starting Wt. (lb.)	FatGoal (g)	Calorie Goal
120	33	1200
125		
130		
135		
140		
145		
150		
155		
160		
165		
170		
175	42	1500
180		
185		
190		
195		
200		
205		
210		
215		

Starting Wt. (lb.)	Fat Goal (g)	Calorie Goal
220	50	1800
225		
230		
235		
240		
245		
250	55	2000
255		
260		
265		
270		
275		
280		
285		
290		
295		
300		

*Note: To determine participants' fat and calorie goals, round their starting weight to the nearest starting weight on this table.

5.4. Setting a Calorie Goal

Some participants will achieve the weight loss goal by self-monitoring fat intake. Others, who may continue to eat large amounts of protein and carbohydrates or inaccurately estimate fat intake, will need to add calorie monitoring to achieve the weight loss goal. Participants who prefer to focus only on fat may do so until the session entitled, Tip the Calorie Balance. At that session a calorie goal will be introduced for participants who have not lost weight as expected.

It is important that the introduction of calorie self-monitoring not be conveyed as "punishment" for "failing" at fat self-monitoring but rather as another learning tool or method for understanding a participant's energy intake patterns.
The calorie goals were calculated by first estimating the daily calories needed to maintain starting weight (starting weight multiplied by 12). Next, between 500 and 1000 calories were subtracted to estimate the calories needed to lose 1 to 2 pounds per week and achieve the weight

loss goal within the first 24 weeks. More calories were subtracted for heavier participants with the rationale that they have more weight to lose to reach the 7% weight loss goal (500 calories were subtracted for starting weights less than 150 pounds, 750 calories for starting weights between 150 and 200 pounds, and 1000 calories for starting weights over 200 pounds.) Finally, the ranges of calories estimated for weight loss were collapsed into one of four standard calorie levels: 1200, 1500, 1800 or 2000.

Some participants may report a low fat/calorie intake without losing weight. In this case, the Case Manager should review the quality of the participants' self-monitoring and if lacking, (for example, if portion sizes are being inaccurately reported, if additions such as cream to coffee are routinely forgotten, etc.), the Case Manager should help the participants improve their self-monitoring skills. If after attempts to improve self-monitoring, a participant is still not losing weight, it may be necessary to lower the calorie goal further to help him or her achieve the weight loss goal.

Guidelines for adjusting the calorie goal are given in the tool box for weight loss. Although the minimum goal has been set at 1200 calories, the goal may be reduced to 1000 calories if a participant is not losing weight and efforts to improve self-monitoring have been made. Because of the possibility of nutritional inadequacy at an intake of 1000 calories, a daily vitamin and mineral supplement at 100% of the Recommended Dietary Allowances should be prescribed for these participants, and the overall nutritional adequacy of the participant's eating pattern should be carefully monitored. Before assigning a calorie goal below 1000 calories, the Case Manager should contact the LRC.

Lowering dietary calories to a specific level is used in this study as a means to achieving the weight loss goal, rather than as a goal in and of itself. Thus, if a participant is consuming more than the assigned calorie goal, but is achieving the weight goal (and does not have hyperlipidemia, see Protocol), there is no need to focus on greater reductions in calories.

Participants assigned a calorie goal will be asked to either self-monitor calories or follow a study-provided meal plan at the prescribed calorie level. Before being distributed, the sample meal plan should be tailored to suit each participant's food preferences. The meal plan should be presented as a flexible model from which the participant can develop an individualized eating style appropriate for weight loss, rather than as a rigid prescription set in stone.

5.5. Self-monitoring Fat and/or Calorie Intake During the Core Curriculum

All participants will be instructed to self-monitor fat intake in grams **daily throughout the first 24 weeks of the study and for one week every month thereafter.** Self-monitoring of daily calorie intake will also be assigned in some cases (see above).
All participants are asked to record their intake daily for 24 weeks because of the extensive evidence that self-monitoring is highly correlated with success in reaching dietary change goals. Numerous studies have shown a dose-response relationship between frequency of self-

monitoring and level of success in losing weight and/or improving cardiovascular risk factors. **Many experts consider self-monitoring the single most effective approach to changing dietary intake.** Participants in clinical trials and behavioral weight loss studies are typically asked to record their intake daily for the first several months of the intervention.

Participants will be given the following standard self-monitoring tools:

- Tools for weighing and measuring foods (a food scale, metal or plastic measuring cups and spoons, a glass measuring cup, ruler).
- A pocket-sized booklet, entitled "Keeping Track," for recording seven days of food intake with fat and/or calorie values, as well as physical activity.
- "The DPP Fat Counter," a nutrient counter alphabetized by food name, with the fat gram and calorie content of household portions.
- A calculator may be provided to those who would like to use one.

Self-monitoring skills will be taught gradually over the first few weeks of the core curriculum, with self-monitoring of dietary intake and physical activity being introduced sequentially depending on which goal the participant chooses to focus on first (see Section 7.2.4., Maintaining the Basic Content and Sequence of Core Curriculum Sessions). Participants will be encouraged to be complete and accurate in self-monitoring and at the same time to feel free to use abbreviations and short-cuts that work for them (e.g., write "Breakfast, 200 calories" when they eat their standard 200-calorie breakfast, provided the Case Manager is well aware of the foods in the breakfast from past records). In other words, the **participant is NOT taught to self-monitor with the thoroughness and detail that would be required if the records were to be entered into a computer for nutrient analyses.**

It is recognized that not all participants will self-monitor daily at all times throughout the study. However, all participants should endeavor to achieve and maintain daily self-monitoring and should receive a strong and clear message that self-monitoring is the key behavior change strategy in the lifestyle intervention.

All self-monitoring records should be reviewed by the Case Manager. During the session, the review should be kept brief. Summary data should be entered on the DPP Lifestyle Intervention Data Form. After the session, the review should be more thorough, and the Case Manager should write comments on the records and return them by mail or at the next session to the participant. The comments should highlight examples of positive changes the participant has made and help the participant solve any problems encountered, particularly those related to the topics discussed at the previous session. Because the self-monitoring records are intended to help the participant make behavior changes rather than serve as a source of dietary data, the review should *not* be as detailed or extensive as would be the case when documenting food records to be entered for nutrient analysis.

5.5.1. Guidelines for Individualizing the Frequency or Method of Self-Monitoring During the Core Curriculum

In some cases, a participant may have difficulty self-monitoring daily or using the standard method and tools for self-monitoring during the core curriculum. For example, some participants may have very limited reading or math skills. In these cases a simplified form of self-monitoring may be used (see the tool box for weight loss). Likewise, over time some participants may become less adherent to self-monitoring. If weight loss is progressing as expected without self-monitoring, self-monitoring should be encouraged but not required. If weight loss is not occurring, the barriers to self-monitoring should be addressed and an alternate method or frequency of self-monitoring should be assigned, again, with high expectations expressed. See the tool box for weight loss for a description of alternate self-monitoring tools and guidelines for using them.

5.6. Self-Monitoring Fat and/or Calorie Intake After the Core

After the first 24 weeks, if weight loss is maintained at goal, self-monitoring for at least one week every month should be strongly encouraged. For participants who have achieved and maintained their weight goal, the minimum required frequency will be one week of self-monitoring every month. For participants who are not at goal, the Lifestyle Coach should problem solve with the participant. The frequency of self-monitoring should be increased as necessary until the weight goal is achieved and maintained, and/or alternate self-monitoring tools should be recommended to address any barriers to self-monitoring (see tool box for weight loss). Participants who continue frequent self-monitoring may be the ones who will be most successful at long-term behavior change.