



The Diabetes Prevention Program's *Lifestyle Change Program*

Section 6. Overview of Strategies to Achieve the Physical Activity Goal

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6.1. Achieving the Physical Activity Goal

Participants are encouraged to achieve the physical activity goal of 700 kilocalories per week (or 2 ½ hours of moderate activity) in a step-wise fashion over a five-week period and then to maintain the goal for the remainder of the study. The five-week period begins with session 1 for those participants who focus on physical activity first and with session 4 for those who focus on losing weight first. During the first week, participants are simply encouraged to do something active on 3 to 4 days per week. On subsequent weeks, the activity level is increased to 60, 90, 120, and finally 150 minutes per week.

If participants do not achieve the physical activity goal within five weeks, they will be encouraged to achieve it as soon as possible thereafter.

6.2. Self-monitoring of Physical Activity

All participants will be instructed to **self-monitor physical activity daily throughout the study.**

For the first 24 weeks participants will be asked to record physical activity in a pocket-sized booklet, entitled “Keeping Track,” in which they will also record food intake. After the first 24 weeks, participants will be given monthly calendars on which to record daily physical activity and will be asked to return the completed calendars in person or by mail every month.

Self-monitoring skills will be taught gradually over the first few weeks of the core curriculum, with self-monitoring of physical activity and dietary intake being introduced sequentially depending on which goal the participant chooses to focus on first.

Achievement of the physical activity goal is based solely on participant self-monitoring records (unlike with weight loss, there is no objective measure to verify self-report of physical activity level). Thus it is extremely important that all participants continue to record their activity daily throughout the study and that accurate information be obtained. If physical activity is not increasing as expected, alternate methods of self-monitoring should be used. See the tool box for physical activity for a description of alternate self-monitoring tools and guidelines for using them.

All self-monitoring records will be reviewed by the Case Manager. Summary data will be entered on the DPP Lifestyle Intervention Data Form. The records will be returned to the participant, with written or verbal comments from the Case Manager. The comments should highlight examples of positive changes the participant has made and help the participant address any barriers to physical activity encountered.

6.3. Definition and Examples of Moderate Physical Activities

The intent of the DPP lifestyle intervention is to encourage all types of physical activity. However, depending on the intensity of the activity, more or less than 2 ½ hours of time doing the activity may be required to use 700 kilocalories. We believe that most participants will use walking as their primary type of physical activity. These individuals should be instructed to walk briskly for 2 ½ hours during the week. Other activities that are similar in intensity to brisk walking are shown in Table 6.1; as with brisk walking, participants who do these activities for 2 ½ hours per week will typically expend 700 kilocalories.

Table 6.1. Moderate Physical Activities Usually Equivalent to Brisk Walking

The following physical activities are usually equivalent in intensity to a brisk walk.

- Aerobic dance (high impact, low impact, step aerobics)
- Bicycle riding (outdoors or on an indoor, stationery bike)
- Dancing (square dancing, line dancing) Note: Be careful not to include breaks.
- Hiking
- Jogging (outdoor, indoor, treadmill)
- Karate
- Rope jumping
- Rowing (canoeing)
- Skating (ice skating, roller skating, rollerblading)
- Skiing (cross-country, Nordic Track)
- Soccer
- Stair Master
- Strength Training (free weights, Nautilus, etc.)
- Swimming (laps, snorkeling, scuba diving)
- Tennis
- Volleyball
- Walking (outdoor, indoor at mall or fitness center, treadmill)
- Water Aerobics

Many physical activities may or may not be equivalent to brisk walking, depending on how they are performed by an individual participant. For example, the following activities may be more intense than brisk walking, depending on how they are performed: basketball, squash, handball, and racquetball. On the other hand, the following may be less intense than brisk walking, depending on how they are performed: golf (walking only and carrying or pulling clubs), softball, and baseball. Participants who regularly perform physical activities other than those listed in Table 6.1 should therefore be scheduled for a consultation with the exercise physiologist on staff (or the Lifestyle Coach should contact the LRC, Attention: Andrea Kriska, PhD) to determine the minutes per week necessary to expend 700 kilocalories. In addition, the Case Manager should discuss with each participant in detail the physical activities he or she does or plans to do and evaluate each activity on a case-by-case basis in terms of its application toward the study goal. Participants should *not* be given a list, such as that in Table 6.1., and told that

these are “acceptable” activities whereas others are not. Rather, participants should discuss their activities with the Case Manager and/or the exercise physiologist available at the local center to identify a way in which the participants can expend at least 700 kilocalories per week in physical activity.

The following general guidelines are provided to help Case Managers judge whether an activity is equivalent to brisk walking:

- The activity should last at least 10 minutes, not including breaks (although some activities such as tennis or jumping rope may involve short “breaks” in the activity).
- For job-related activities, in addition to the above two criteria, the physical activity should comprise at least 50% of the job.

For example:

| Equivalent to brisk walking | Not equivalent to brisk walking |
|--|---|
| Using a gas-powered push mower to mow several acres of lawn with a great deal of exertion. | Using a gas-powered push mower to mow a tiny lawn in five minutes, without much exertion. Using a riding mower to mow several acres of lawn without much exertion. |
| Delivering the mail if 75% of the day is spent walking. | Delivering the mail if 75% of the day is spent driving a truck. |
| Going to a dance and dancing most of the evening. | Going to a dance and dancing only a few times during the evening. Spending most of the time socializing and watching others dance. |

Some sports and leisure activities are clearly not equivalent in intensity or duration to brisk walking, such as archery, bowling, fishing, light gardening, and pool. These are to be encouraged as part of an active lifestyle but are not to be applied toward the activity goal. Likewise, other activities, such as light yard work and light housework are to be encouraged as part of an active lifestyle but not self-monitored or applied toward the goal because they usually do not represent a **level of activity equivalent to brisk walking**. The criteria of “equivalent to brisk walking” is used with the rationale that such activities will be most likely to help participants lose weight, lower glucose, and improve cardiovascular risk factors.

Some participants may choose to do more vigorous activities, such as running. In these cases it may be unnecessary to do 2 ½ hours of activity to achieve the 700 kilocalorie goal. These cases are expected to occur infrequently and should be discussed with local experts in exercise physiology and with the LRC before making any reductions in the 2 ½ hour goal.

If questions arise about whether a particular activity as performed by a participant may be applied toward the study goal, the Case Manager should write a paragraph describing it in detail, and FAX it to the DPP Lifestyle Resource Core, University of Pittsburgh, Attention: Andrea Kriska, PhD.

6.4. Supervised Activity Sessions

6.4.1 General Guidelines

Every clinical center must provide supervised physical activity sessions **at least two times per week**. The purpose is to **help participants achieve 150 minutes of physical activity per week**. Supervised activity sessions also provide group support for exercise and allow for the collection of data, beyond self-report, on participation in exercise.

Lifestyle Coaches should strongly recommend that all participants who can perform at least 30 minutes of continuous, moderate-intensity activity attend the sessions. The goal is for all participants to have the opportunity to give the sessions a “good try,” receive hands-on physical activity instruction and encouragement from the session leaders, and meet other participants with whom they can develop support networks for being active. Throughout the study, participants who are having difficulty meeting their exercise goal should in particular be encouraged to attend.

The supervised activity sessions should last about 45 minutes to 1 hour and include a warm-up period, followed by about 30-40 minutes of exercise and a cool-down period. Possible locations include the DPP clinic, malls, parks, gymnasiums, or exercise facilities such as a YMCA or private health club. The types of physical activity may vary and should be tailored to the skills and interests of the participants. It is recommended that at least one session per week involve brisk walking. Other possible types of activities include aerobic dance, resistance training, and step aerobics. The activities offered must be equivalent to brisk walking (see Section 6.3. Definition and Examples of Moderate Physical Activities). Activities not on Table 6.1. should be approved by the Lifestyle Resource Core before being offered as a supervised activity session.

The supervised activity sessions should be scheduled **at times and locations to accommodate as many lifestyle participants as possible**. Centers may need to experiment with various types of activities, times and locations in order to attract more participants. To determine the types of activities to offer and the most convenient times and locations, Coaches may want to periodically survey participants by mail.

Keep in mind the following safety issues:

- If possible, during the activity sessions, considerations should be made for participants of different fitness levels. For example, the leader may need to split his or her time between the slow and fast walkers or consider walking on a track so that a variety of paces can be accommodated. Some centers may have adequate staff to provide more than one leader.
- If the activity session is being held at a remote location with limited access to emergency medical services or a telephone (such as on a hiking trail), the leader should have a cell phone for emergencies and if possible, a First Aid kit with bandages, ace wrap and cold pack for minor injuries.

- Leaders should emphasize hydration during the activity sessions (especially in warmer weather) and should have water available for participants who do not bring water.

In general, it is anticipated that most of the supervised physical activity sessions will be **led by a member of the DPP staff**, such as an exercise physiologist, student, Lifestyle Coach, or trained peer leader. All activity session leaders should be trained in CPR. If your center has difficulty offering the required two sessions per week or has found that these sessions are poorly attended, **you can use an exercise class in the community** (e.g., an aerobics class in a health facility at your university) **provided all three of the following guidelines are followed** (with this caution: use outside exercise classes **to supplement your physical activity intervention; each center should still have an expert in exercise on the DPP staff to guide and support participants and Coaches**):

1. Before participants attend the class, **meet with the leader** to evaluate the facility and the nature of the class and explain the purpose of the DPP and the activity goal. For as long as participants attend, contact the leader periodically to check on how the participants are doing. If the class leader changes, meet with the new leader to orient him or her to the DPP and the activity goal.
2. **Advertise the class to all lifestyle participants who are at an appropriate fitness level and provide any registration fees** or other costs so that all who want to can attend.
3. **Get written documentation from the leader that the participants attended.**

If any one of the above three guidelines are not followed, the class cannot be considered a supervised activity session, although it could count toward the participants' self-reported activity minutes.

It is expected that attendance at each activity session will differ. That is, some participants may come to both supervised activity sessions per week; some may come once a week; others may come only on occasion. All patterns of attendance are acceptable. Family members and significant others are welcome to attend as well.

Centers that are having difficulty attracting participants to supervised activity sessions are strongly encouraged to contact the Lifestyle Resource Core for problem solving and support.

6.4.2 Models of Supervised Activity Sessions

The following models illustrate a few of the many possible ways to fulfill the requirement for supervised activity sessions. Other possibilities exist, and some centers use a combination of the following models. If the supervised activity sessions at your center are categorically different than the models below, please call the Lifestyle Resource Core.

Neighborhood Group Walks

Two or more group walks are offered per week in separate neighborhoods around the city, convenient to different participants. The DPP exercise consultant or a Lifestyle Coach leads the walks. When possible, the walks are tied into training for a community walking event such as the local ADA walk.

Cardiac Rehabilitation Unit

Participants use the cardiac rehabilitation unit affiliated with the clinic's university medical center. The unit includes a treadmill, exercise bike, recumbent bike, stair master, and free weights. The Coach introduces the participants to the unit, and then participants set up a regular schedule with the center staff for at least 2-3 times per week (several class times are available each weekday). If participants miss a session, the unit requires them to call and reschedule. The center staff send the Coach a monthly log of participant attendance. The DPP is charged a flat rate per participant per month. If the participant stops attending, the DPP is not billed.

Community Exercise Class or Facility

Participants attend aerobic dance classes or step aerobic classes at the local Wellness Center and YWCA. The Coach introduces the participants to the class leaders, and the leaders send the Coach a monthly log of participant attendance. The DPP pays the registration fees for the classes.

One-on-One

(Note: This model is less desirable than the others because it does not provide the group experience. However, if none of the above models are working at a center, the one-on-one approach is an option.) Participants exercise one-on-one with someone affiliated with the DPP, for example:

- Their Lifestyle Coaches. This could be at the end of a regular session, during a session (e.g., conducting the visit while walking), or at a separately scheduled time.
- Another DPP staff person (such as a graduate student in exercise physiology, the DPP exercise consultant, or another staff person). At one center, the DPP receptionist enjoys walking and has agreed to walk with a group of participants on some of her daily walks.
- A personal trainer at a YMCA or health club. The Coach puts the participant in touch with the trainer and orients the trainer to the DPP goals. The trainer provides documentation of the exercise.