



Initiating Exercise Programs for Patients with Non-insulin-dependent Diabetes

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Considerable attention has been focused on the importance of physical activity in improving the diabetic state in obese, non-insulin-dependent diabetic patients. Because this patient population tends to be sedentary, this challenge requires an active effort involving the patient and health-care providers. The latter may be a team including physician, dietitian, nurse practitioner, and physical therapist. Programs must be individualized. The patient must be a full partner in developing plans and goals. Plans should represent the patient's interests, should blend into the daily schedule, and should avoid boredom. Programs are adapted to the patient's physical condition and are graduated in duration and intensity. Motivation is stimulated through education and is reinforced both by self-monitoring techniques and monitoring by providers. Such programs add a new dimension to both physical and psychological well-being. *DIABETES CARE* 3: 627-628, SEPTEMBER-OCTOBER 1980.

The treatment of obese, non-insulin-dependent diabetic patients includes the recommendation to increase physical activity. In contrast to the remarkable surge of popularity of aerobic exercise in many other groups, it is more common to find this patient population relatively sedentary in terms of significant physical exertion, sometimes despite unusually busy life schedules. Some of these individuals were quite active, even athletic when younger, but have succumbed to the tendency to conserve physical energy, using twentieth century technology to perform the bulk of physical work in their daily lives. Very deliberate, graduated physical activity programs are indicated to help them to combat this life-style.

Those who have struggled with a weight problem usually have had considerable experience with diets, but fewer have used exercise programs, and then only calisthenics, to enhance calorie expenditure. In our program, motivation to embark on this treatment approach is stimulated through patient education on how and why physical activity can improve the diabetic state. Basic physiologic concepts of energy metabolism and storage usually prove fascinating to those who have never thought of food as a source of fuel to provide energy for body functions. Descriptions of specific types of physical activity and their relative value are included, with emphasis on working toward the use of an endurance type of exercise program. This is an opportunity to dispel the myth of disproportionate appetite stimulation by physical activity

and to prepare patients for success through graduated increments to prevent sore muscles and undue fatigue. Patient education can be done effectively and efficiently in small groups.

Like the diet prescription, the exercise program will vary, depending on the patient's physical condition. The physician provides the individualized exercise prescription. To implement the program for the individual patient, good baseline data are necessary, including (1) physical limitations; (2) exercise interests—past, present, and future; (3) attitudes associated with physical activity; (4) available facilities; (5) daily schedule including home and work commitments; (6) preference for individual or group activities; (7) patient's personal support systems. Collecting these data at the patient's convenience via written questionnaire allows for reflection and self-analysis. A daily hour-by-hour diary of current physical activity, relating this to categories of energy expenditure (see Figure 1), is kept for a minimum of 4 days, recording both weekday and weekend patterns. The reluctance of patients to keep such records is usually overcome by explaining their purpose and value. Before any basic behavior can be changed, one must focus attention to gain a conscious, accurate awareness of the habits under scrutiny. We all feel confident that we know ourselves, but are invariably impressed and often surprised with such documentation.

The counselor and patient then review and analyze the data together. It is in this session that the personal situation,

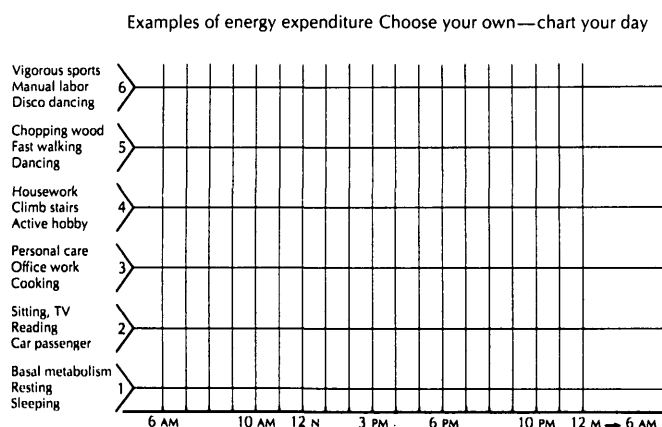


FIG. 1. Examples of energy expenditure. (Reproduced from Diabetes: Reach for Health and Freedom. Chap. 1, General considerations. Sims, D. F., Ed. St. Louis, C. V. Mosby, 1980.)

physical environment, and attitudes emerge that allow for individualizing a physical activity program. To gain perspective on the baseline activity levels, the patient compares diaries with models of a sedentary and an active day (see Figures 2 and 3). The first objective is to include more general activity in the day, i.e., more walking, stair climbing, or standing. Our problem-solving skills are challenged by the individual who can accept only purposeful, productive activity, or the one who suffers wheezing during outdoor activity in a climate of long winters. Consider the woman who has spent years working out efficient, labor-saving methods of homemaking, or the urbanophile transplanted to a more rural environment to whom walking presents no passing scene of interest or of human identity.

Creative solutions do emerge. Secretaries elect to climb up two flights of stairs routinely to use the rest room; individuals use enclosed shopping malls for sheltered exercise. They dance, find a co-worker for a lunch-hour walk, take over

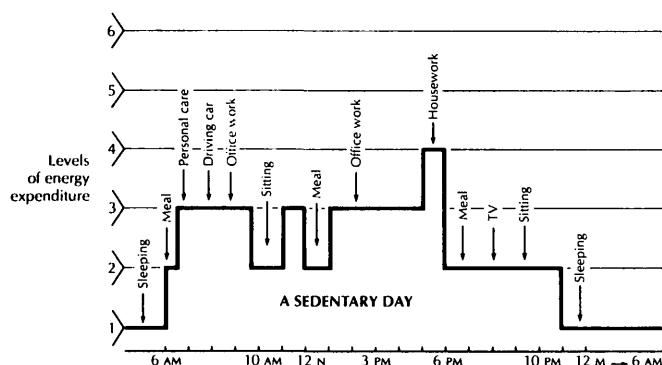


FIG. 2. Levels of energy expenditure on a sedentary day. (Reproduced from Diabetes: Reach for Health and Freedom.)

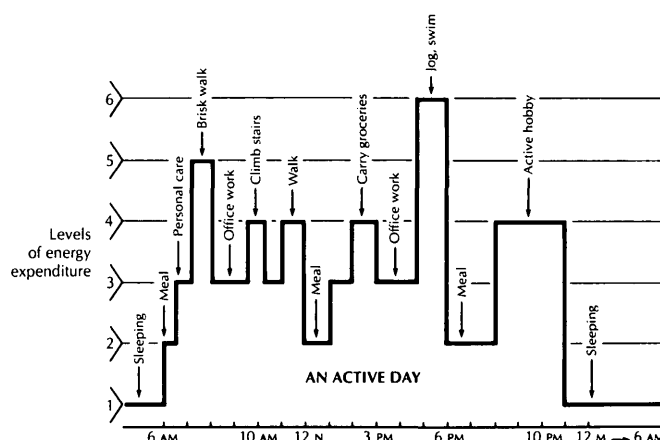


FIG. 3. Levels of energy expenditure on an active day. (Reproduced from Diabetes: Reach for Health and Freedom.)

walking the family dog, grow their own vegetables, take over a newspaper delivery route, park the car further away from their destinations, or cut and stack wood for the stove.

The next progression is to an endurance exercise program. Walking is the most natural and safest form. It is important to establish specific goals for each patient, i.e., "15 minutes each day walking at a comfortable pace; increase to 20 minutes a day the second week." The pace and duration should be increased gradually as tolerated. Attention to appropriate foot wear and foot care is indicated. Again, patients keep records in a daily diary to reinforce the establishment of new habits, and many enjoy self-monitoring by using a pedometer. Some of these individuals will be considered later as candidates for a cardiovascular conditioning program involving a specific protocol beyond the scope of this discussion.

With encouragement during the starting process and reinforcement until the rewards of increased stamina and energy appear, individuals are gratified by the added dimension in their lives. They learn what it is to feel well, to observe more as they stride along, and to participate in a far wider range of activities. A physical activity program has become an intrinsic part of our management of non-insulin-dependent diabetic patients. Even if diabetes is not cured, its effect definitely can be ameliorated, and the quality of life invariably improved.

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