

# Physical Activity: A Key to Wellness

**N**ow more than ever, research and recommendations about the benefits of being physically active throughout life are prevalent within the health community and in the media. Physical activity can be a powerful tool in averting or delaying the development and/or progression of many chronic diseases and conditions – heart disease, diabetes, obesity, arthritis, depression and certain types of cancer. Despite the proliferation of this critical message to be physically active, the Surgeon General's 1996 report notes that less than half of adults in the United States exercise on a regular basis, and about one-quarter aren't active at all.

It is the role of health professionals to discuss with their patients the importance of physical activity for overall health. Such recommendations should be safe, realistic and as specific as possible to elicit compliance. People are more likely to begin regular exercise with explicit guidance, direction and a clear understanding of the potential benefits.

## Physical Activity Recommendations

A number of health organizations offer guidance about physical activity. Fortunately, these recommendations generally coincide and overlap so, while it is important to be familiar with them individually, the overall messages are similar.

### ■ *The National Academy of Sciences' Report Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein and Amino Acids* (2002)

- Cardiovascular activity: To prevent weight gain and to accrue additional, weight-independent health benefits, 60 minutes of daily moderate physical activity (e.g., walking/jogging at 4 to 5 mph) is recommended.
- Resistance training: The effect of resistance training exercises on muscle strength warrants their inclusion in exercise prescriptions, along with activities that promote cardiovascular fitness and flexibility.

### ■ *The American Heart Association (AHA) (2000, 1996)*

- Cardiovascular activity: Dynamic exercise of the large muscles for extended periods of time (30 to 60 minutes, 3 to 6 times weekly) is recommended. This may include short periods (approximately 5 to 10 minutes) of moderate intensity (60% to 75% of maximal capacity) activity totaling at least 30 minutes on most days.
- Resistance training: Resistance training using 8 to 10 different exercise sets with 10 to 15 repetitions (reps) each (arms, shoulders, chest, trunk, back, hips, legs) performed

at a moderate to high intensity (e.g., 10 to 15 pounds of free weight) at least 2 days per week is recommended.

### ■ *The Surgeon General's Report on Physical Activity (1996)*

- Cardiovascular activity: Significant health benefits can be obtained by including a moderate amount of physical activity (e.g., 30 minutes of brisk walking, 15 minutes of running or 45 minutes of volleyball) on most, if not all, days of the week. People who can maintain a regular regimen of activity that is of longer duration or of more vigorous intensity are likely to derive greater benefit.
- Resistance training: 1-2 sets, 8-12 reps, 2 days per week.

### ■ *Centers for Disease Control and Prevention (CDC) and The American College of Sports Medicine (ACSM) (1995)*

- Cardiovascular activity: Every US adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week.
- Resistance training: Minimum of 1 set, 8-12 reps, 2-3 days per week.

The take home message for patients is to get active and stay active, in any manner, aiming for *at least* 30 to 60 minutes of activity on most – if not all – days of the week. Vigorous aerobic exercise, general physical activity (such as brisk walking or active gardening) and resistance training all count.

The primary components of an exercise program, benefits and guided recommendations for physical activity are detailed below. While these are safe guidelines for most, exercise programs should be individualized based on age, gender, fitness level, existence of chronic disease or other health problems, previous exercise experience and personal preferences. Sedentary individuals, men over 40 years of age and women over 50, those with pre-existing health conditions, known or suspected risk factors or symptoms of cardiovascular and other chronic diseases should seek medical evaluation before beginning an exercise program.

## Cardiovascular/Aerobic Exercise

The benefits of cardiovascular or aerobic exercise have long been recognized. Aerobic exercise is characterized by a marked increase in heart rate, respiratory rate, blood pressure and body temperature. This type of exercise should elicit sweating and heavier breathing after several minutes.

Regular, vigorous aerobic activity can help:

- ✓ Lower blood pressure
- ✓ Improve lipid profile (decrease low-density lipoprotein (LDL) “bad” cholesterol level and increase high-density lipoprotein (HDL) “good” cholesterol level)
- ✓ Reduce risk of developing type 2 diabetes and improve glycemic control in those who have diabetes
- ✓ Reduce risk of heart disease and stroke
- ✓ Contribute to weight loss and/or maintenance
- ✓ Improve sleep quality
- ✓ Decrease depression
- ✓ Reduce stress

Weight bearing cardiovascular exercise, such as running/jogging, brisk walking and stair climbing, should always be encouraged, when appropriate for the individual, to help maintain bone mass. Other examples of aerobic exercise are biking/cycling, swimming and cross-country skiing. Aerobic activity needs to be vigorous enough to raise heart rate to a range of 60% to 85% of maximal heart rate. (Maximal heart rate =  $220 - \text{age}$ .) The lower end of the range represents moderate activity while the higher end represents vigorous activity.

## Resistance Training

The benefits of resistance training, also known as strength training, are now recognized due to important research over the last two decades. In some instances, this type of exercise was perceived as unsafe for older or unfit individuals – a belief that has since been negated through sound scientific studies. A hallmark of the aging process is the loss of muscle mass and strength, known as sarcopenia. Sarcopenia increases risk for chronic disease and frailty. Resistance training has been shown to improve balance, increase muscle strength and is the only type of exercise known to increase muscle mass.

Preliminary research also indicates that resistance training may be important for weight control. Research from the Tufts University laboratory has demonstrated that resistance training increases metabolic rate. It also increases and maintains muscle mass – body tissue that is metabolically active and burning calories – and decreases fat mass. Thus, resistance training, in combination with adequate aerobic exercise and proper nutrition, is important for a comprehensive weight loss/ weight maintenance program.

Once considered an activity for younger men, research has shown age-appropriate resistance training to be a safe, effective means for increasing muscular strength among even the frailest elders. Further, research is showing that it may be even more important for women since they have approximately one-third less muscle than men and are more likely to develop osteoporosis and/or become disabled in old age. Resistance training is one of the most effective ways for women to preserve muscle mass, strength and bone density as they age.

## Stretching

Often overlooked or underestimated is the role of stretching exercises as part of a complete exercise program. Stretching exercises help prevent activity-related injuries and keep people limber and flexible. Muscles, ligaments and tendons are conditioned through progressive stretching exercises. This allows the body to move more freely and assists in dynamic balance (e.g., balance during walking). Ideally, stretching exercises should be done every day, although three days per week is probably enough to maintain flexibility.

## Incorporating Components into Daily Life

Health professionals should look at the recommendations, integrate them and provide patients with a comprehensive, targeted message. Here are some suggestions for advising individuals about being active to maintain health:

1. *Be more active in daily life.* Increase activity throughout the day – even 10-minute sessions can have a positive effect; encourage leisure sports, walking the dog, yoga, shooting hoops, playing with the kids, etc.
2. *Get more deliberate, prescribed activity.* Aim to exercise on most, preferably all, days at a moderate level for 30 to 60 minutes. (If you exercise vigorously, do so for at least 20-30 minutes, 3 to 5 times per week.)
3. *Do age-appropriate resistance training activities.* Try for 8 or more exercises, 1-3 sets, 8-12 repetitions on at least 2 non-consecutive days per week.
4. *Stretch or do flexibility exercises.* Do these before and/or after physical activities on most, preferably all, days of the week.

The ideal scenario for integrating these crucial components into a complete and effective exercise program would be for individuals to stretch both before and after each exercise session. For instance, one would first warm up briefly by jogging, biking, doing jumping jacks, etc., to increase circulation and deliver more oxygen to the muscles. Then, stretching exercises that target the major muscle groups would follow. The aerobic and strength training components would come next (with either coming first) followed by a cool-down and final stretching routine. Unfortunately, many people are under time constraints and stretching exercises are not always the top priority. If an individual can only stretch once during each exercise session, stretching is best left to the end of the workout because the muscles will be limber and flexible after some aerobic exercise.

These recommendations assume that an individual will be completing an exercise “program” all at the same time. However, this is not necessary for benefits and, with busy schedules, it often works best to portion activity throughout the day. New research has shown that lifestyle physical activity can be as effective as structured aerobic exercise for weight maintenance, as well as for improving cardio-respiratory fitness and blood pressure.

*Table 1: Recommendations for Minimum Levels of Physical Activity*

<b>Mode/Activity</b>	<b>Examples</b>	<b>Duration/Frequency</b>	<b>Benefits</b>
General physical (or leisure) activity	<ul style="list-style-type: none"> <li>• Walking (2-3 mph)</li> <li>• Gardening</li> <li>• Golfing</li> </ul>	30-45 minutes total daily at moderate level	Improves overall health
Cardiovascular (or aerobic) exercise	<ul style="list-style-type: none"> <li>• Jogging</li> <li>• Tennis</li> <li>• Biking</li> <li>• Walking (3-5 mph)</li> <li>• Swimming</li> <li>• Rowing</li> <li>• Hiking</li> <li>• Stair climbing</li> </ul>	3-5 or more times per week at moderate to vigorous level, 20+ minutes	Helps lower blood pressure and cholesterol levels and reduce risk for heart disease, diabetes, obesity and certain types of cancer
Resistance (strength) training	<ul style="list-style-type: none"> <li>• Lifting weights</li> <li>• Push-ups</li> <li>• Sit-ups</li> <li>• Pull-ups</li> <li>• Chair stands</li> </ul>	20-45 minutes per session, 2 to 3 nonconsecutive days per week (8 or more exercises, 1-3 sets, 8-12 reps)	Maintains muscle mass and strength; promotes strong bones; reduces risk and symptoms of arthritis; improves glycemic control
Stretching	<ul style="list-style-type: none"> <li>• Standing or seated toe touch</li> <li>• Overhead reach</li> <li>• Ballet moves</li> </ul>	Hold each positioned stretch for 20-30 seconds; do on most, preferably all, days of the week	Reduces risk for injuries and falls; maintains and increases muscle and joint flexibility

The concept of spreading activity throughout the day, as well as incorporating daily activity into lifestyle habits, cannot be overemphasized. For instance, resistance training need not be done at the same time as aerobic exercise; one could be completed in the morning and the other in the evening.

## Encouraging Physical Activity

Perhaps the most important role of health professionals in encouraging and motivating patients to become more active is to be prepared with recommendations and referrals. If appropriate, compile and maintain a comprehensive list of organizations, local fitness centers, personal trainers, etc., so that patients can be given pertinent information as needed.

## Summary

Current physical activity levels among most Americans are insufficient to preserve health and reduce the risk of many of the preventable chronic diseases that affect large numbers of individuals. Health professionals can play a critical role in reversing these trends by having a base of knowledge and comfort level discussing both the benefits and appropriate recommendations for obtaining *at least* the minimum level of physical activity needed to maintain health.

### Further Reading:

*Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein and Amino Acids.* Washington, DC: The National Academy of Sciences, 2002. [[www.iom.edu/](http://www.iom.edu/) (Click on "recent reports." Scroll down to the report.)]

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