

POWER OF PREVENTION

GUIDE TO PHYSICAL ACTIVITY



AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS

THE POWER OF PREVENTION GUIDE TO PHYSICAL ACTIVITY

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Appendix 1

Specific activity for your workout from the President's Council on Physical Fitness and Sports

Stay Active and Be Fit!

U.S. Department of Health and Human Services, President's Council on Physical Fitness and Sports

Appendix 2

Additional Stretching, Strength Training and Endurance Activity President's Challenge: Physical Activity

Get Fit and Be Active! How to Be More Active and Get in Shape to Meet the President's Challenge.

U.S. Department of Health and Human Services, President's Council on Physical Fitness and Sports

Introduction

The Power of Prevention Guide to Physical Activity

“To life!” is an ancient toast that still can be heard at celebrations today. It is also the first line of a song from a popular Broadway musical which deals with enduring values in a turbulent world. Most cultures and religions around the world celebrate the value and beauty of life. And yet, a passage from one of the world’s oldest religions reminds us that we have a choice. The Old Testament says that we can choose life or death, and asks us to choose life so that we and our children may live.


Today, we are plagued with the twin epidemics of poor nutrition and lack of physical activity. Around the world, from large cities to remote Pacific Islands, we see adults and children who are overweight because of too much food and too little activity. We are raising a generation of overweight children who may die before their parents. We are making the wrong choices. It is time to choose wisely, to choose life, to choose better nutrition, and more activity.

Physical activity has remarkable power. As mentioned in the chapters of this guide, physical activity can help us survive heart attacks and cancer. People are not active because they do not have the time or because they do not know how to get started. This manual explains how to get started. It deals with physical activity in general, and also deals with special circumstances: children, the elderly, the physically challenged, and people with diabetes, heart disease, obesity, low bone mass, or who are pregnant.

This guide is the first produced by the American Association of Clinical Endocrinologists (AACE) and the American College of Endocrinology (ACE). I would like to recognize the great effort of: the Co-Editor, Dr. Rhoda Cobin; the authors of each chapter (who are listed separately on the title page); Dr. Martin Grajower, who came to AACE with the idea for this book; and the AACE staff, including Lauren Corley, Power of Prevention Coordinator, Bryan Campbell, Sarah Bradley, Sissy Horn, Nicole Wilhelm, and Don Jones, the CEO of AACE. Lastly, I would like to thank Donald Liss, MD, Assistant Clinical Professor of Rehabilitative Medicine at Columbia University and Co-Director of The Physical Medicine and Rehabilitation Center, P.A., for his information about physical activity programs.

Getting Started

First, read the chapter which best describes your condition. For example read chapter 8 if you are over 65. Even though only one or two of these chapters may apply to you, you will learn a lot about the value of physical activity by reading all of the chapters. Each chapter explains, in medically correct but easy to understand language, why physical activity is good for you. These chapters also help you understand what type of physical activity will be appropriate for your condition.

 This symbol at the beginning of a paragraph means the paragraph deals with specific types of physical activity.

After you have read the chapters of this guide, please refer to the final two sections in this guide. These sections describe specific activities for your workout from the President's Council on Physical Fitness and Sports. You will also get tips on how to get in shape for the President's Award.

Tips to Remember

- You should always begin your workout with a warm up, then do some stretching, followed by brief strength training, and finish with an endurance type of activity (such as walking or jogging). You should then have a cool down period followed by more stretching. If you are middle-aged or older, balance training is helpful (see page 89 for examples of balance exercises).
- You must start your workout gradually, particularly if you are out of shape.
- Certain types of activity may be dangerous if you have problems such as heart disease, osteoporosis, diabetes, or if you are pregnant. Always check with your doctor before beginning a new physical activity program.
- Compulsive physical over activity is not healthy. Check with your doctor about the type and amount of physical activity that is right for your body type.

Remember, physical activity is for everyone. No excuses!

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The Power of Prevention Guide to Physical Activity

CHAPTER SUMMARIES

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Physiology of Physical Activity

There are two main types of exercise. Strength training, such as sprinting or lifting weights, involves specific groups of muscles, and is particularly useful in people who are out of shape or elderly. Endurance training (running, jogging, swimming, rowing) improves cardio-respiratory fitness. Exercise involves the use of oxygen to burn food, which releases energy (aerobic exercise). When a person is physically fit hormone levels improve, the immune system works better, and the heart pumps more efficiently.

Physical Activity and Cardiovascular Health

Physical activity reduces the impact of many risk factors for stroke and heart attack. People who get regular physical activity are less likely to develop adult onset (type 2) diabetes. Physical activity also lowers blood pressure, improves cholesterol, and may even reduce the risk of metastatic (widespread) cancer. Being physically fit helps to stabilize the lining of blood vessels (endothelium) where damage takes place and where plaque buildup begins.

Physical Activity and Weight Loss

To improve cardiovascular health, a person needs to sweat. On the other hand, weight loss involves simply burning calories, and any form of physical activity will do. You will burn the same number of calories if you walk a mile in 30 minutes or sprint that same mile in six minutes. Burn more calories than you eat, and you will lose weight.

Physical Activity and Bone Health

The best time to stimulate bone growth is when children are 11 to 14 years of age. Gymnastics and weight lifting produce the greatest gains in bone mass at this time. Too much exercise, however, if it is associated with disordered eating patterns and decreased hormone levels, can actually lead to bone loss. Physical activity during adulthood helps to maintain bone mass. Many short sessions of physical activity build more bone than the same amount of physical activity performed in a single session. Activity should include resistance (such as weight lifting), and weight bearing (such as tennis, stair climbing, and jumping). Physical activity for the older adult should include balance training and gait training. Abdominal crunches and physical activity that stresses the bones must be avoided in people who already have osteoporosis.

Physical Activity and Diabetes

Physical activity improves the uptake of sugar by skeletal muscles in a way that is independent of and complementary to the effect of insulin. Physical activity also increases the effect of insulin on the muscles. This helps to improve the uptake of sugar into muscle and lower the lipid levels in the muscles. Physical activity also helps patients lose weight and reduce fat in the abdominal wall. Physical activity of any kind provides health benefits; the activity does not have to be vigorous. However, daily exercise provides the most benefit. Five thousand steps per day is a reasonable goal (two thousand steps equal one mile). Use a pedometer to measure your progress. Both endurance types of activity and strength training are useful. Special precautions must be taken in diabetics who are on medication (insulin as well as oral agents) to avoid hypoglycemia. Moderate to high intensity physical activity may be a problem for diabetics with certain types of eye disease (such as retinopathy) neuropathy, and cardiac and vascular disease. Check with your physician first.

Physical Activity for Pregnant Women with Diabetes

Pregnant women with diabetes who have regularly exercised before pregnancy can continue during pregnancy. For those out of shape, beginning a cardiovascular fitness program during the first trimester is not recommended. Arm exercise machines provide a reasonable form of physical activity for pregnant women who are out of shape. However, certain types of physical activity may affect the uterus, the baby's heart rate, and delivery of sugar to the baby. Check first with your obstetrician and your endocrinologist.

Physical Activity for the Physically Challenged

Start with low intensity aerobic exercises for 10 to 15 minute sessions, three to five times a week. Stop if you feel fatigued. First do strength-training exercises using heavier weights to strengthen atrophied muscles. Next, do repetitive exercises, using lighter weights if mobility is a problem, to increase endurance. Flexibility training (stretching) improves range of motion, balance, coordination, and the ability to carry out the regular activities of daily living. The “talk test” and measuring heart rate helps you to gauge whether your activity is light intensity, moderate intensity, or high intensity. Type of activity, workload, duration, and intensity must be modified according to the type and extent of physical limitation.

Physical Activity for the Elderly

“Elderly” used to refer to people over 60; but, by keeping physically fit and adopting healthy life styles, we have some control over whether or not we are truly “elderly.” Physical activity refers to any activity that uses muscles, increases the heart rate, and spends more energy than it takes the body to maintain itself. A regular program of physical activity increases the number of blood carrying capillaries in our muscles. This improves the delivery of oxygen and nutrients. Resistance training increases the size and number of muscle fibers, increases the strength of muscles and tendons, and improves joint stability. Endurance training increases the ability of the muscles to store food energy as glycogen. All forms of physical activity increase the number of mitochondria (energy factories) in muscle cells. This improves the body’s metabolism and use of strength training and balance training are particularly good for the nervous system. Also, physical activity increases oxygen flow to the brain.

Physical Activity for Children

Activity should last a minimum of 30 minutes and take place three times a week. Start gradually. Use your heart rate as a goal (for example children age 10 to 17 will want to maintain a heart rate of 148 beats per minute, which they can work up to gradually). Always check with your physician, to be sure this is a safe and reasonable goal. Do not push yourself. You should stretch before and after exercise for a total of 10 to 12 minutes per day. You should drink water during exercise and after exercise, even if you do not feel thirsty. Vary your routine, because different exercises work different muscle groups.