

DIABETES

Diabetes is a serious disorder that affects approximately 17 million people in the US. It is the 5th deadliest disease in the country, contributing to over 200,000 deaths each year. Diabetes stems from a failure to produce or to properly use the hormone insulin. Insulin enables glucose, the basic sugar derived from carbohydrate foods, to move from the blood into the muscle cells. The muscle cells use glucose for energy. When glucose cannot enter the muscle cells, blood sugar levels increase. It is these increased levels that cause the severe complications of diabetes.

There are two separate and distinct diabetes diseases: insulin dependent diabetes mellitus (IDDM), and non-insulin dependent diabetes mellitus (NIDDM). See the table below for a comparison of the two types.

INSULIN DEPENDENT DIABETES MELLITUS (IDDM)	NON-INSULIN DEPENDENT (NIDDM)
Known as Type I or juvenile onset diabetes	Known as Type II or adult onset diabetes
10-15% of diabetes cases	85-90% of diabetes cases
Sudden onset, usually beginning in childhood	Gradual onset, usually diagnosed after age 45
Specialized beta cells in the pancreas fail to produce insulin. Body appears to attack its own beta cells.	Disease is due either to <ul style="list-style-type: none"> • decreased sensitivity of muscle cells to insulin, or • defective insulin secretion from pancreas. Heredity & obesity are important factors in its development.
Treatment aim: normalize blood sugar levels.	Treatment aim: normalize blood sugar levels.
Insulin by injection is required to control blood sugar levels. Careful monitoring and proper dosing of insulin is essential.	Diet, exercise, and weight control may adequately control blood sugar levels. If drugs are required, oral medications that enhance the release of insulin from the pancreas or increase sensitivity of muscle cells to insulin are generally used. Sometimes insulin may be necessary to achieve adequate blood sugar control.
Exercise aimed at improving health of the heart and circulatory system and decreasing disease complications. Blood sugar levels should be fairly well controlled for aerobic exercise to be safe.	Controlling diabetes with exercise should focus on controlling blood sugar levels; reducing body weight; and helping to decrease medication requirements. This is best accomplished by exercising daily with a low to moderate intensity and long duration. Improved cardiovascular health and reduction of disease complications are added

	benefits of exercise.
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Elevated blood sugar levels damage the blood vessels throughout the body and are responsible for the severe complications associated with diabetes. It is estimated that 60-70% of diabetics develop one or more complications. Major complications include:

- Heart disease
- High blood pressure
- Stroke
- Kidney disease
- Poor circulation which hinders healing and may necessitate amputation
- Blindness due to damage to the small vessels in the back of the eye
- Nerve damage, especially to the nerves in the feet, hands, and legs

The interactions between exercise, carbohydrate intake, blood sugar levels, and insulin regulation are complex. Therefore, if you have diabetes, it is important to work closely with your medical team (physician, diabetic educator, dietician, exercise specialist) to establish a treatment plan that accounts for your specific medication, exercise, and dietary needs. A team approach will help you learn more about your disease and determine what you need to do personally to minimize complications. Be sure to ask your health care provider about controlling diabetes with exercise.

EXERCISE & DIABETES

Physical inactivity is common among persons with diabetes. An estimated 70% of diabetics are sedentary. The more physically active a person is, the less likely he or she will experience problems with diabetes. Gentle exercise may help regulate glucose levels. The [SIT AND BE FIT Diabetes Workout](#) focuses on improving circulation with special attention to the feet and lower extremities.

Controlling Diabetes With Exercise:

Exercise is an important component of diabetes management. Exercise:

- improves the general overall quality of life
- improves blood sugar control
- improves sensitivity of muscles to insulin
- reduces complications of the disease
- reduces risk factors and may prevent NIDDM

For more information on exercising, look at these health tips: [Senior Fitness Test](#), [Principles of Exercising](#), [Overweight and Exercises](#) and [Arm Exercises](#).

Chair Exercise for Diabetes:

[Chair exercise](#) for diabetes can be an effective diabetes management exercise program. Chair exercise goals include:

- improve posture
- improve breathing

- increase joint flexibility & range of motion
- increase circulation
- improve balance
- increase muscle strength
- reduce stress & increase relaxation

When exercising in a chair, make sure the characteristics of your chair are proper for the exercises ([Characteristics of a Good Exercise Chair](#)).

Diabetes and Exercise-Precautions:

- Avoid exercises that involve heavy resistance or holding the breath.
- Avoid high intensity activity. Low to moderate exercise intensities are appropriate.
- Avoid extreme temperatures. Provide for adequate ventilation in the exercise room.
- Protect the feet from injury with supportive, well-fitting shoes and socks.

THE SIT AND BE FIT DIABETES WORKOUT

The SIT AND BE FIT Television Series is an effective gentle exercise program designed for people with a variety of conditions, including diabetes. Responding to viewer requests, Mary Ann Wilson, RN designed The **SIT AND BE FIT [Diabetes Workout](#)** to help prevent some of the complications common to diabetes. The [Diabetes Workout](#) concentrates on increasing circulation, improving sensory stimulation and maintaining flexibility of the feet. The program was developed with a team of medical and healthcare professionals. The Diabetes Workout is patterned after the SIT AND BE FIT television series which has proven to be an effective resource for those managing diabetes.

Controlling Diabetes With Exercise Helps Viewers:

"Just a note to let you know that your exercises have been of tremendous help to me. It is amazing how my balance and strength have improved. I think the secret to your workout is that all of the muscles are involved. I have had diabetic peripheral neuropathy for several years. Before I started exercising with you on TV, my balance and numbness in my legs was so bad that I was beginning to limit my driving. After about 3 months of following your exercises, my balance and sensation in my legs have improved to the extent that I no longer limit my driving."

Monty C. Ph.D., LCDC
Houston, TX

"Just wanted to tell you how much I enjoyed your program. I watched and exercised regularly last year and felt great. I have been off for about 6 months and happy to say I am back hopefully regularly. I feel so much better- you have helped get some of my lazy bones working again. I am a diabetic and have neuropathy in my feet- your routines are very helpful. Hope to see you each day for many more years. Keep up the good work and continue to give us that lovely smile."

**Margaret S.
Port St. Lucie, FL**

ABOUT THE DIABETES EXERCISE WORKOUT

The SIT AND BE FIT [Diabetes Exercise Workout](#) is a 25-minute program that features slow, gentle footwork to increase circulation and sensory stimulation. A small ball (not included) is used to assist with various upper and lower body gentle exercises. The workout includes:

- an opening segment by Lynn Kohlmeier, MD with suggestions for controlling diabetes with diet and exercise
- exercises that concentrate on improving circulation and flexibility of the feet
- seated versions of standing exercises

Warm-Up	3:49	Seated
Circulation	2:20	Seated
Finger/Ball Routine	4:00	Seated
Feet/Ball Routine	3:36	Seated
Leg Exercises	2:15	Standing/Seated
Stretching	2:30	Standing/Seated
Relaxation	1:30	Seated

Diabetes Workout Benefits:

- Improve overall quality of life
- Improve blood sugar control
- Improve muscle sensitivity to insulin
- Reduce complications of diabetes
- Reduce risk factors for and help prevents NIDDM

Other SIT AND BE FIT Workouts That May Be Beneficial For Those Managing Diabetes:

Multiple Sclerosis: VHS	Tone & Stretch I: VHS in Spanish	Tone & Stretch II: VHS
Tone & Stretch III: VHS	Tone & Stretch IV: DVD VHS	30 Minute Workout: VHS
All-Sitting Exercises: DVD VHS	Senior Friends Focus On Fitness: VHS	Balance & Fall Prevention: DVD VHS
Stroke Workout:	Parkinson's Workout:	Parkinson's Workout II:

[VHS](#)

[VHS](#)

[DVD VHS](#)

A WORD FROM MARY ANN About Diabetes Management and Exercise:



My goal is to contribute to your good health by providing you with a safe, effective program to help you stay functionally fit. Gentle exercise is one of the most important ways to control the difficulties associated with diabetes.

The **Diabetes Workout** is a safe, gentle, non-compromising program. The entire workout can be done seated. The standing exercises can be added when weight bearing exercising can be tolerated. In this way, the workout may be tailored to your individual activity level.

This beneficial program is a wonderful resource for those managing diabetes, especially individuals experiencing orthopedic limitations, peripheral neuropathy, and obesity.

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