

Guidelines for Exercise

Regular exercise is a part of a healthful lifestyle. Exercise can also help people with type 1 and type 2 diabetes. Exercise can:

- Decrease the risk of heart disease. Your heart health improves through aerobic activities (walking, jogging, swimming, dancing, etc.).
- Improve cholesterol levels. It will decrease the LDL (“bad”) cholesterol and increase the HDL (“good”) cholesterol.
- Reduce blood pressure.
- Improve blood sugar control through strength training. This will decrease the amount of medicines you need because exercise helps:
 - Increase lean body mass, or the amount of muscle.
 - Improve insulin resistance and helping muscles to use blood sugar better.
 - You achieve and maintain a healthy weight.
- Reduce the risk of diabetic problems. This may include neuropathy (nerve damage), retinopathy (eye damage), and nephropathy (kidney damage).
- Improve strength, self-image, feeling of well-being and quality of life.

Starting an Exercise Program

Check with your doctor before starting an exercise program. Choose aerobic activities that you enjoy and fit them into your lifestyle. Some examples include:

- Fast walking
- Jogging
- Swimming
- Skiing
- Cycling
- Jumping rope

- Aerobic dance
- Water-aerobics

Slowly increase how often, how hard and how long you exercise. You should build up to a goal of **at least** 150 minutes (2 ½ hours) per week.

Before Exercise

Your blood sugar should be in good control before you exercise. If you exercise when your blood sugar is high:

- Blood sugar and ketones will increase.
- Muscles will not be able to use the blood sugar for energy.
- The liver will make more sugar to meet the needs of the muscles.
- The increased sugar from the liver will increase the blood sugar even more.

Exercise Plan

An exercise plan includes how long, often, and how much a person would like to exercise to meet their goals. This plan is based on your current activity level, age and goals. The American College of Sports Medicine (ACSM) suggests:

- **How long:** At least 150 minutes per week. This may be 30 minutes per day and can be divided into 10-minute intervals. To lose weight you may need to exercise for 60-90 minutes.
- **How often:** At least 5 days per week. To control your blood sugar it is best to exercise daily.
- **How hard** – Use personal **heart rate** goals and **perceived effort** to gauge how hard. You should slowly

increase and decrease your heart rate. Use the equation below to find your target heart rate for 60-80% intensity.

$$\text{Target Heart Rate at 60\% intensity} = (220 - \text{Age}) \times 0.6$$

$$\text{Target Heart Rate at 80\% intensity} = (220 - \text{Age}) \times 0.8$$

Perceived Exertion Scale	
6	
7	Very, Very Light
8	
9	Very Light
10	
11	Fairly Light
12	
13	Somewhat Hard
14	
15	Hard
16	
17	Very Hard
18	
19	Very, Very Hard
20	

Use the table above to measure your perceived effort, or exertion. It is best to exercise near an 11-13 rating on the perceived exertion scale (PES).

Guidelines if You Have Type 1 Diabetes

The risk of high blood glucose (hyperglycemia) and low blood glucose (hypoglycemia) during exercise is a concern for persons with type 1 diabetes. High blood glucose can occur if the blood sugar is high before exercise. Low blood sugar can be caused by:

- Too little food before exercise.
- Exercise when insulin is peaking.

If you have type 1 diabetes, you need to:

- Check blood glucose levels before and after exercise, and sometimes during.
- Do not exercise if blood glucose is greater than 250 mg/dl.
- Exercise after meals and snacks.
- Inject insulin into non-active muscle group and ask doctor if you need to adjust insulin to support regular exercise.
- Always carry **identification** that shows you have diabetes and a fast-acting **sugar source** during exercise, such as glucose tablets or hard candy.

Guidelines if You Have Type 2 Diabetes

If you have type 2 diabetes, you need to:

- Check blood glucose levels before and after exercise.
- If your blood glucose is greater than 250 mg/dl, do not exercise until it is under control.
- If you use insulin or take pills, always carry a fast-acting sugar source with you such as glucose tablets or hard candy.

Guidelines for Nutrition During Exercise

Type of Exercise	If blood glucose is...	Increase food intake by...
Short duration 30-45 minutes IE: walking, an easy bike ride	Less than 100mg	10-15g carbohydrate per hour (1 fruit or 1 starch serving)
	100mg/dl or above	You do not need to eat more
Moderate intensity 30-60 minutes IE: tennis, swimming, jogging, cycling, golfing, etc.	Less than 100mg	20-50g carbohydrate per hour (2 fruit or 2 starch with 1 meat and 1 milk serving)
	100-180mg/dl	15g carbohydrates per hour (1 fruit or 1 starch serving)
	180-250mg/dl	You do not need to eat more
Vigorous intensity 60+ minutes IE: football, hockey, soccer, swimming, snow shoveling, etc.	Less than 100mg/dl	50g carbohydrates per hour (2 starch, 1 fruit, 1 milk and 1-2 meat servings)
	100-180mg/dl	25-50g carbohydrates per hour (2 starch or 2 starch, 1 fruit and 1 milk serving)
	180-250mg/dl	10-15g Carbohydrates per hour (1 fruit or 1 starch serving)

Teach Back:

What is the most important thing you learned from this handout?

What changes will you make in your diet/lifestyle, based on what you learned today?

If you are a UW Health patient and have more questions please contact UW Health at one of the phone numbers listed below. You can also visit our website at www.uwhealth.org/nutrition.

Nutrition clinics for UW Hospital and Clinics (UWHC) and American Family Children's Hospital (AFCH) can be reached at: **(608) 890-5500**.

Nutrition clinics for UW Medical Foundation (UWMF) can be reached at: **(608) 287-2770**.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 3/2019 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#260