

Diabetic retinopathy is a complication of diabetes that can lead to blindness. Caused by changes in the blood vessels of the retina, diabetic retinopathy is the most common diabetic eye disease. Usually no symptoms are present in the early stages of the disease. As the disease progresses, a person may experience spots in vision or blurred vision.

Normal Vision



National Eye Institute, National Institutes of Health, Ref#: EDS01

Same scene viewed by a person with diabetic retinopathy



Diabetic Retinopathy

National Eye Institute, National Institutes of Health, Ref#: EDS04

For more information:

American Diabetes Association:
www.diabetes.org

American Optometric Association:
www.aoa.org

Dash Diet:
dashdiet.org

Idaho Plate Method:
www.platemethod.com/downloads.html

National Eye Institute/National Institutes of Health:
www.nei.nih.gov/

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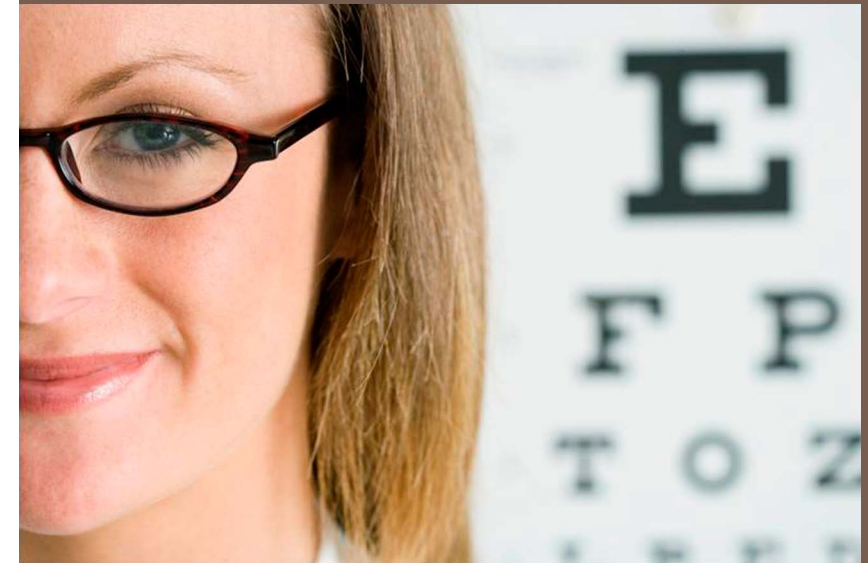
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For more information on this and other topics, see www.ag.ndsu.edu/food

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Eating for Your Eyes II

Diabetic Retinopathy:

Prevention, Treatment and Diet

NDSU EXTENSION SERVICE

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Risk Factors for Diabetic Retinopathy

- * Presence of Type 1 or 2 diabetes
- * Diabetes diagnosis and pregnant
- * Poor blood sugar control
- * Poor blood pressure control
- * Presence of kidney disease
- * Duration of diabetes

Know Your Numbers

Fasting Blood Glucose Level

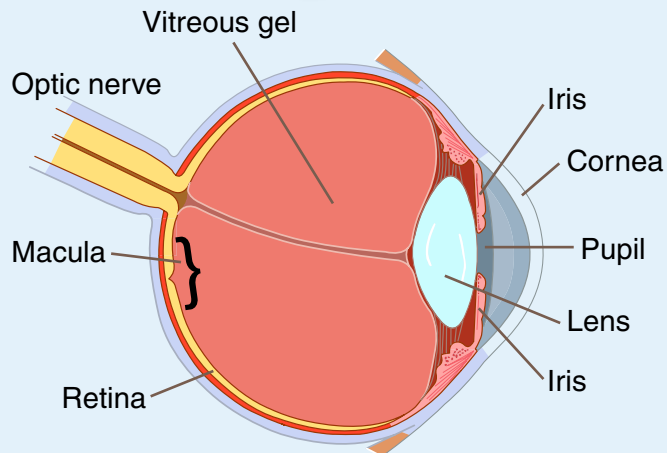
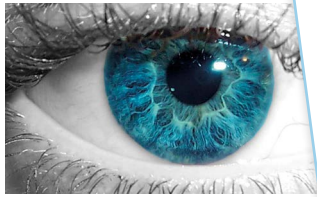
Normal	70-100 mg/dl
Prediabetes	>100 mg/dl
Diabetes	>126 mg/dl

Hemoglobin A1c

Normal	4-6%
Goal for Diabetes	<7%

Blood Pressure (mmHG)

Normal	<120/80
Hypertension	≥140/90



Prevention and Treatment

Control blood sugar

- * Maintain a consistent intake of carbohydrate foods at meals
 - Bread/starch/grain, milk/yogurt, fruit/fruit juice and sweets contain carbohydrate

Control blood pressure

- * Increase intake of fruits, vegetables, whole grains, low-fat or fat-free dairy products and nuts
- * Decrease sodium intake
- * Moderate alcohol intake

Control cholesterol levels

- * Choose foods moderate in fat and low in saturated fat, cholesterol and trans fat

Get regular physical activity

- * Get moderate or vigorous activity most days of the week combined with resistance training

Lose weight if overweight

Have regular physician and dietitian visits

Have regular comprehensive and dilated-eye exams

- * Yearly or as soon as possible during pregnancy

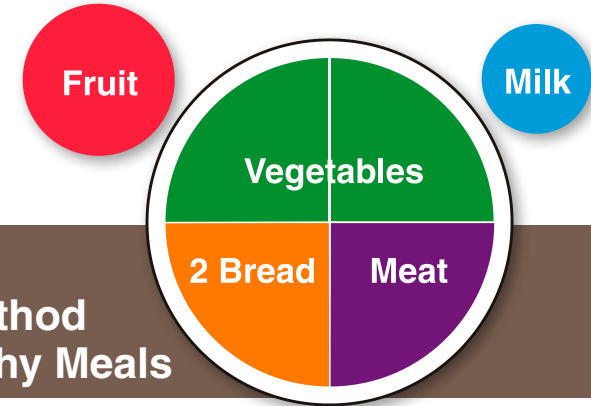
Diabetic Retinopathy Treatments

Scatter laser treatment, a vitrectomy and focal laser treatments are effective (decrease vision loss by 50 to 60 percent) but are not curative.

Prevention is Key

Eat a healthy diet to help control blood sugar, blood pressure and cholesterol levels

Use the Plate Method for Healthy Meals



- **Vegetables - ½ plate**
 - * Watery, not starchy
- **Meat/fish/poultry/tofu/eggs/nuts - ¼ plate**
 - * Protein foods
- **Bread/starch/grain - ¼ plate for one serving; may have two servings**
 - * Includes starchy vegetables and dry beans
 - * Choose whole grains most often
- **Milk and yogurt – use 1 small cup or coffee cup**
 - * Skim or 1% milk, low-fat or fat-free yogurt
- **Fruit – Use ½ cup dessert dish or 1 small cup or coffee cup**
 - * 1 small fruit, ½ cup sliced fruit or applesauce, ½ cup fruit juice, 1 cup melons or berries