



**Diabetes and
Healthy Eyes
Toolkit**

A Flipchart for Health Promoters



National Eye Health
Education Program
NEHEP

RISK FACTORS FOR DEVELOPING DIABETES

- A risk factor is a condition (e.g., obesity) or any activity (e.g., eating in excess) that can adversely affect one's health or that can increase the possibility of developing a disease.
- Some risk factors can be changed. These are called modifiable risk factors.
- There are several major risk factors for developing diabetes. These risk factors include—

Family history

You are at greater risk for developing diabetes if any member of your immediate family has diabetes. This includes your father, mother, grandparents, brothers, sisters, and first cousins.

High blood pressure

Blood pressure higher than 140/90 mm/Hg is a risk factor for diabetes. For people with diabetes, blood pressure should be lower than 130/80 mm/Hg.

Obesity

Obesity is a strong risk factor for diabetes. Most often, obesity is due to overeating and lack of exercise. Regular exercise, such as walking at least 30 minutes five times per week, is strongly recommended. Following a healthy diet is also important for avoiding obesity.

High cholesterol and high triglycerides

High cholesterol and high triglyceride levels are risk factors for diabetes. Blood tests are available to test for high cholesterol and high triglycerides.

Gestational diabetes

If a woman develops diabetes during pregnancy, she is at a higher risk for diabetes later in life.

RISK FACTORS FOR DEVELOPING DIABETES



Family history



High blood pressure

DIABETES



**Obesity, high cholesterol,
and high triglycerides**



**Gestational
diabetes**

If you have risk factors for diabetes, you should have your glucose levels checked.

DIABETES AND EYE COMPLICATIONS

- Diabetes occurs when the body cannot or does not control high levels of blood glucose.
- Diabetes can cause problems such as heart disease, kidney failure, and amputations.
- Diabetes can cause diabetic eye disease, which can lead to vision loss or blindness.
- Diabetic eye disease includes—
 - Diabetic retinopathy
 - Cataract
 - Glaucoma
- Diabetic eye disease can cause permanent vision loss or low vision. Low vision means that even with regular glasses, contact lenses, medicine, or surgery, people find everyday tasks difficult to do. Reading the mail, shopping, cooking, watching TV, and writing can all seem challenging.
- A person with diabetes is much more likely to become blind than a person without diabetes.
- The risk of blindness may be lessened. Later on, we will learn how to reduce the risk of blindness.

DIABETES AND EYE COMPLICATIONS

If you have diabetes, you must take care of your eyes.

Diabetes is caused when the body cannot or does not control high levels of blood glucose.



Diabetes can cause diabetic eye disease, which can lead to low vision or blindness.

ANATOMY OF THE EYE AND ITS FUNCTION

Here is a description of some of the main parts of the eye:

Cornea

The cornea is the clear outer part of the eye's focusing system located at the front of the eye.

Iris

The iris is the colored part of the eye that regulates the amount of light entering the eye.

Lens

The lens is a clear part of the eye behind the iris that helps to focus light, or an image, on the retina.

Macula

The macula is the small sensitive area of the retina that gives central vision. It is located in the center of the retina.

Optic nerve

The optic nerve is the largest sensory nerve of the eye. It carries impulses for sight from the retina to the brain.

Pupil

The pupil is the opening at the center of the iris. The iris adjusts the size of the pupil and controls the amount of light that can enter the eye.

Retina

The retina is the light-sensitive tissue at the back of the eye. The retina converts light into electrical impulses that are sent to the brain through the optic nerve.

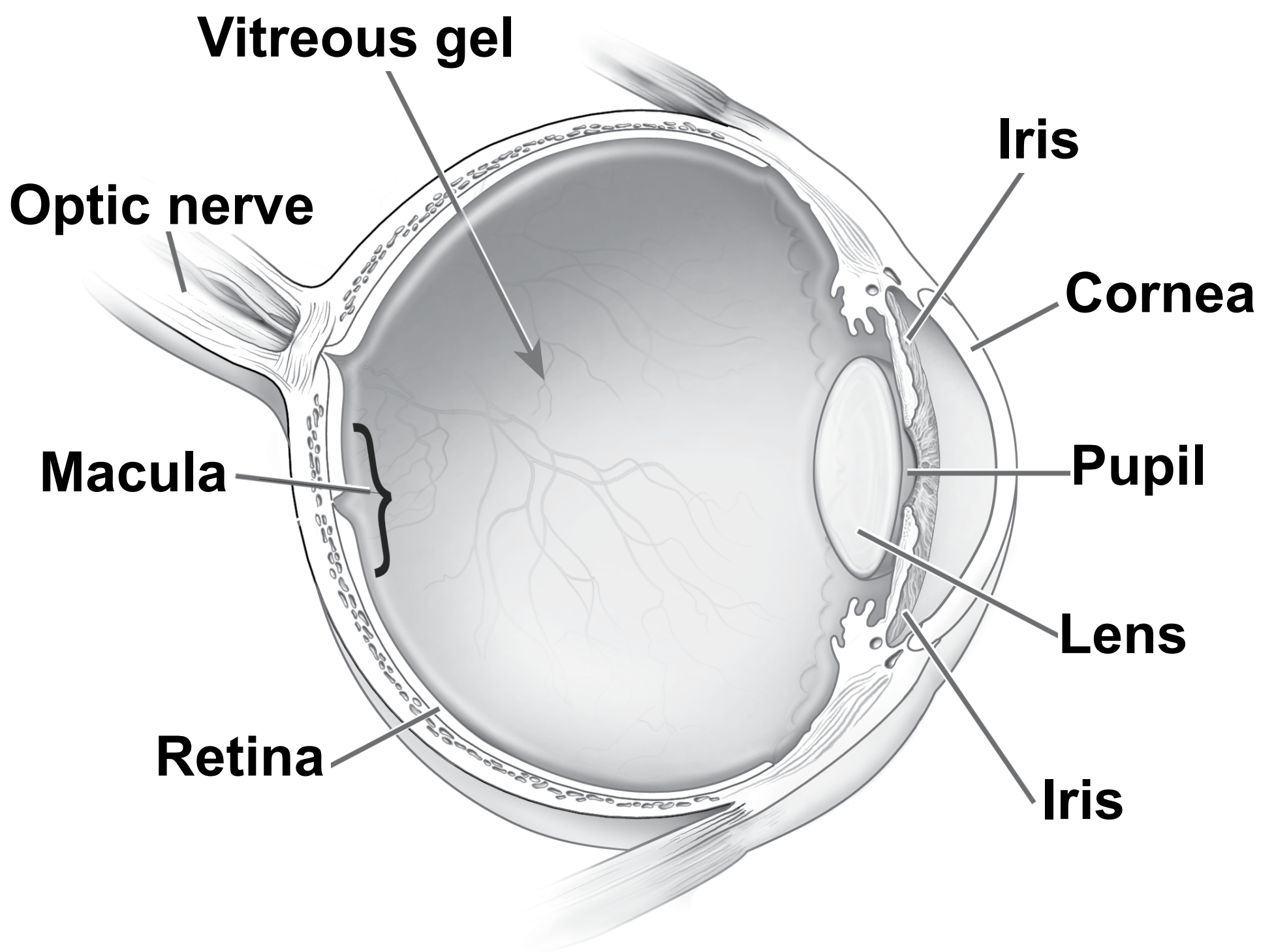
Vitreous gel

The vitreous gel is a transparent, colorless mass that fills the rear two-thirds of the eyeball, between the lens and the retina.

ANATOMY OF THE EYE AND ITS FUNCTION

Vision is wonderful, but you could lose it if you have diabetes.

The main parts of the eye—



THE DILATED EYE EXAM

- A comprehensive eye exam measures vision, checks for refractive errors (such as nearsightedness, farsightedness, or astigmatism), and includes dilating the pupils to detect eye disease.
- A dilated eye exam allows an eye care professional (ophthalmologist or optometrist) to see more of the inside of your eyes to check for signs of disease. Early detection and timely treatment can reduce the risk of blindness.

A person with diabetes should remember the following:

- Some eye diseases do not have symptoms. Do not wait to visit an eye care professional.
- At least once a year you should see an eye care professional.
- The dilated eye exam is short, simple, and painless.
- An eye care professional who has experience examining the eye and the retina should perform this exam.
 - The eye care professional will put two eye drops in each eye to open, or dilate, the pupil.
 - Then the eye care professional will examine the different parts of the eye, especially the retina.
- Only an eye care professional can tell what is happening inside the eye.
- During the dilated eye exam, the eye care professional can find damage to the lens, cornea, retina, and/or other parts of the eye.

THE DILATED EYE EXAM

A dilated eye exam allows an eye care professional to see more of the inside of your eyes to check for signs of disease.



Don't wait for symptoms to see an eye care professional.



Have a dilated eye exam at least once a year.

DIABETIC RETINOPATHY

- It is an eye complication of diabetes.
- It damages the small blood vessels in the retina.
- The longer someone has diabetes, the more likely he or she will get diabetic retinopathy.
- The eyesight of a person with diabetic retinopathy can be damaged due to various causes:
 - Bleeding.
 - Detachment of the retina.
 - Presence of abnormal blood vessels in the retina (proliferative retinopathy).
- There are often no symptoms in the early stages of diabetic retinopathy. There is no pain, and vision may not change until the disease becomes severe.
- Vision loss may be prevented by finding and treating the disease in its early stages.
- Treatment involves laser surgery, in which a strong light beam is aimed onto the retina.
- Laser surgery and appropriate follow-up care can reduce the risk of blindness by 90 percent.

DIABETIC RETINOPATHY

Diabetic retinopathy is the most frequent cause of blindness in the United States.



It affects the tiny blood vessels in the retina. This picture shows an eye with swollen blood vessels from diabetic retinopathy.

Normal vision.



Same scene viewed by a person with diabetic retinopathy.

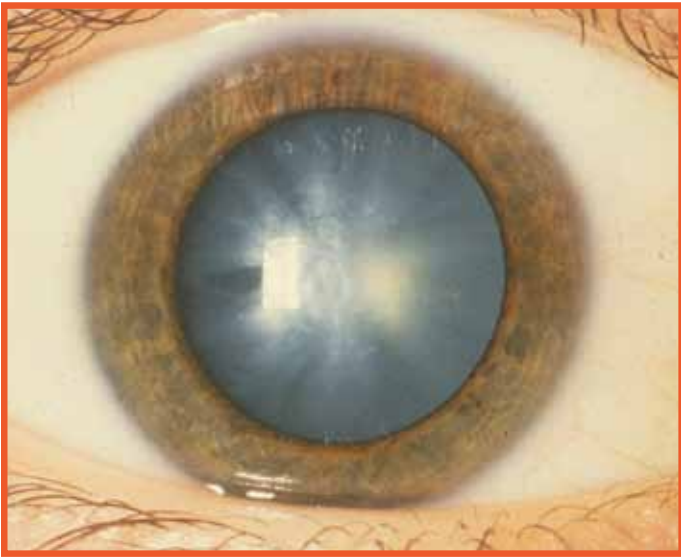


DIABETES AND CATARACT

- Cataract is a clouding of the lens in the eye that affects vision.
- Symptoms that can appear to indicate cataract include the following:
 - Cloudy and blurry vision
 - Faded colors
 - Poor night vision
 - Double vision
 - Problems with bright lights, especially at night
- Diabetes increases the risk of cataract.
- Cataract can occur in one or both eyes. It cannot spread from one eye to the other.
- In earlier stages, the cataract is not yet visible; an eye exam is necessary for detection.
- Symptoms of early cataract may be improved with new eyeglasses, brighter lighting, anti-glare sunglasses, or magnifying lenses. If these measures do not help, surgery is the only effective treatment.
- Cataract surgery is usually safe and successful; the cloudy lens is replaced with a plastic lens.

DIABETES AND CATARACT

Cataract is common all over the world and affects people with diabetes.



A cataract is a clouding of the lens.

People with cataract see through a haze.

Normal vision.



Same scene viewed by a person with cataract.



DIABETES AND GLAUCOMA

- Glaucoma is a group of diseases that can damage the optic nerve and result in vision loss and blindness.
- Glaucoma may be caused by an increase in eye pressure. However, in some forms of glaucoma, eye pressure is normal.
- A form of the disease called open-angle glaucoma is diagnosed most often in the following groups of people:
 - African Americans aged 40 and older
 - Everyone over age 60, especially Mexican Americans
 - People with a family history of glaucoma
- People with diabetes are at an increased risk for an aggressive type of glaucoma called neovascular glaucoma. In this form, abnormal blood vessels grow in the front part of the eye.
- People may not realize they have glaucoma until the disease is advanced. In the early stages, it often has no symptoms because one eye compensates for the other.
- Vision lost to glaucoma cannot be restored. However, with early detection and treatment, vision loss may be prevented or slowed down.
- Treatment options for glaucoma include medications such as prescription eye drops or pills, or surgery.

DIABETES AND GLAUCOMA

At first, glaucoma has no symptoms and, if left untreated, vision loss or blindness can occur.



Glaucoma is a group of diseases that can damage the optic nerve and result in vision loss and blindness.

Normal vision.



Same scene viewed by a person with glaucoma.



THE EYE HEALTH TEAM

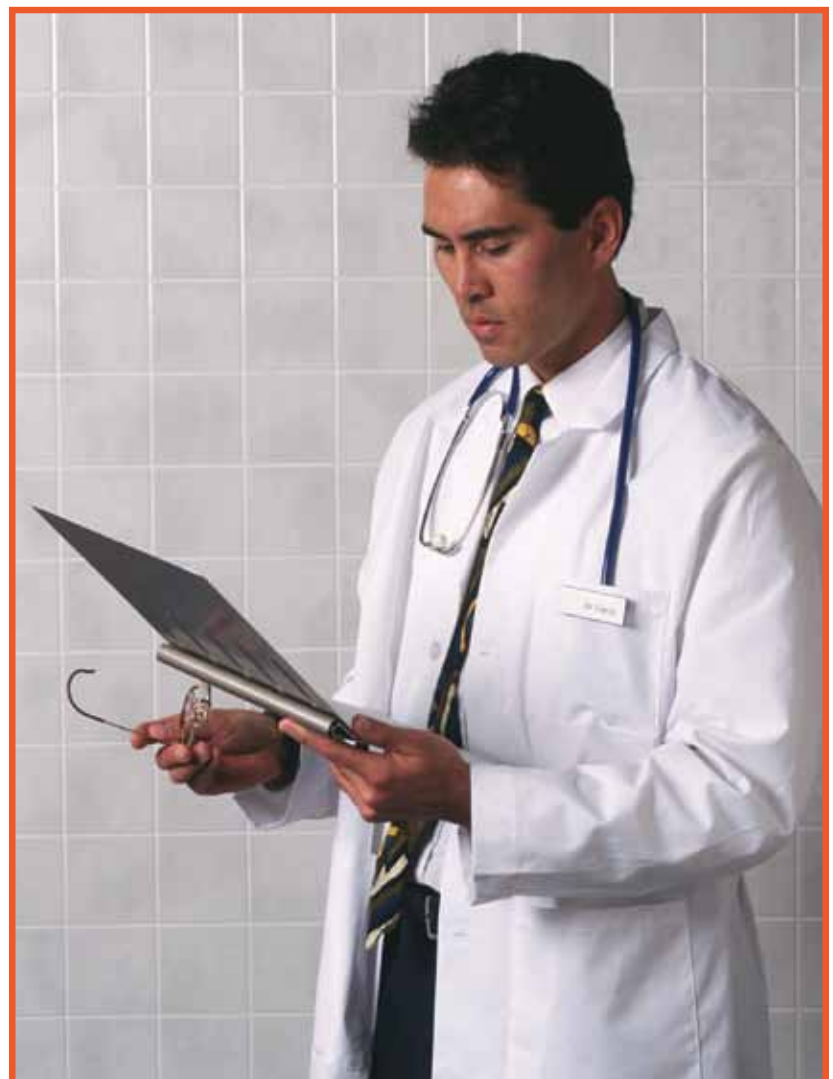
- Health professionals who are part of an eye health team may include—
 - Certified diabetes educator
 - Health promoter
 - Nurse
 - Ophthalmologist
 - Optometrist
 - Pharmacist
 - Primary care provider
 - Social worker
- This team can be smaller or larger, depending on a person's need.
- All of these people can help a person with diabetes obtain optimal health, but the person with diabetes has the main responsibility by controlling his/her glucose levels and getting a dilated eye exam at least once a year.
- People with diabetes should know the following:
 - They can take action to protect their vision.
 - Everyone with diabetes should visit an eye care professional at least once a year.
 - An annual visit to an eye care professional can help to prevent blindness.
 - When they talk with their primary care provider, they can ask for ways to control their glucose levels, blood pressure, and cholesterol.

THE EYE HEALTH TEAM

People with diabetes can protect their vision.

Health professionals who are part of an eye health team include—

- Certified diabetes educator
- Health promoter
- Nurse
- Ophthalmologist
- Optometrist
- Pharmacist
- Primary care provider
- Social worker



Remember—

- **Visit an eye care professional and take care of your eyes.**
- **Ask for a dilated eye exam.**
- **Have a dilated eye exam at least once a year.**

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NEHEP works to ensure that vision is a health priority by translating eye and vision research into public and professional education programs. For more information about resources and materials available to educate your community, contact—

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