

Disease Explanation

CATARACT

Cataract is a condition when your natural lens in your eye becomes progressively cloudy.

Symptoms:

The most common symptoms of cataracts include cloudy or blurry vision, difficulty seeing at night, faded colors, and increased sensitivity to glare and halos around lights.

What Causes Cataract?

The most common cause of cataracts is aging, but preventable risk factors include smoking and prolonged exposure to UV radiation (sunlight). Cataracts can also develop at a younger age due to poorly controlled diabetes, the use of certain medications such as corticosteroids, congenital conditions (being born with it), or previous eye trauma.

Risk Factors:

- Age
- Prolonged exposure to UV radiation
- Diabetes
- Smoking
- Eye injuries or inflammation

Preventive Measures:

- Schedule regular eye exams
- Protect your eye from UV radiation when outdoors by wearing UV-protective sunglasses or hats
- Condition chronic health conditions such as diabetes
- Avoid smoking
- Maintain a healthy diet rich in antioxidants
- Protect your eyes from injury

GLAUCOMA

Glaucoma is a group of diseases with characteristic optic nerve damage, resulting in irreversible loss of vision. Most of the glaucoma is characterised by raised pressure in the eye (intraocular pressure). The level of this pressure that causes optic nerve damage can vary in different individuals and the resistance level of the optic nerve. Glaucoma may lead to leading to constricted visual field, or irreversible vision loss if left untreated.

Symptoms:

The initial vision loss caused by glaucoma is mainly peripheral and not readily noticeable. Central vision and reading vision are usually spared until later. The patient may thus remain asymptomatic until late in the disease when most of the vision has already been irreversibly lost.

Causes:

Glaucoma is commonly associated with elevated intraocular pressure, although optic nerve damage may also occur at normal pressure levels in some individuals.

Risk Factors:

- Age
- High intraocular pressure
- Family history of glaucoma
- Diabetes and high blood pressure
- High myopia (for open angle glaucoma)
- Hyperopia (for angle-closure glaucoma)
- Long-term use of corticosteroids
- Eye injuries
- Asian ethnicity (higher risk of angle-closure glaucoma)

Preventive Measures:

- Schedule regular eye exams for early detection
- Control your eye pressure
- Manage systemic conditions, such as diabetes
- Protect your eyes from injury

DIABETIC RETINOPATHY

Diabetic retinopathy is a complication of diabetes mellitus. It occurs when diabetes damages the tiny blood vessels inside the retina, the light-sensitive tissue at the back of the eye. Diabetic retinopathy is one of the major causes of blindness in young and middle-aged adults.

Symptoms:

Diabetic retinopathy often has no symptoms in its early stages, with vision remaining unaffected until the condition advances. As the disease progresses, symptoms may include difficulty with central vision (e.g., reading or driving), color blindness, and mild blurriness. Small spots or floaters may appear due to blood vessel leaks, typically resolving over time. In severe cases, proliferative diabetic retinopathy can cause sudden vision loss from vitreous bleeding or retinal detachment. Early detection through annual eye exams is crucial to prevent irreversible vision loss.

Causes:

Diabetic retinopathy is caused by long-term high blood sugar levels associated with diabetes, which can damage the blood vessels in the retina. Over time, this damage leads to leakage, swelling, and abnormal blood vessel growth in the retina.

Risk Factors:

- Long duration of diabetes
- Poor blood sugar control
- High blood pressure
- High cholesterol levels
- Pregnancy (in diabetic women)
- Smoking
- Kidney disease

Preventive Measures:

- Monitor your eye condition regularly as recommended
- Maintain tight strict control of blood sugar levels
- Monitor and manage blood pressure and cholesterol levels
- Avoid smoking and adopt a healthy lifestyle
- Take diabetes medications as prescribed and stay physically active

VISUAL IMPAIRMENT

Visual impairment refers to a significant reduction in vision that may not be fully correctable with glasses or contact lenses, affecting daily activities and quality of life. Clinically, this condition is assessed based on your visual acuity.

Symptoms:

Symptoms may include blurred or distorted vision, difficulty reading or recognizing faces, increased sensitivity to light and glare, reduced contrast perception, and challenges with depth perception or peripheral vision. In severe cases, individuals may experience partial or complete loss of sight, making daily activities such as driving, navigating unfamiliar spaces, or performing detailed tasks more challenging.

Causes:

Disease-associated visual impairment can result from various underlying eye conditions. Common eye diseases that cause visual impairment include cataracts, glaucoma, age-related macular degeneration, and diabetic retinopathy.

Preventive Measures:

- Regular eye exams every 1–2 years
- Protect eyes from UV exposure with sunglasses and hats
- Manage chronic health conditions such as diabetes, hypertension
- Maintain a healthy diet rich in antioxidants
- Avoid smoking

AGE-RELATED MACULAR DEGENERATION (AMD)

AMD is a chronic irreversible medical condition that results in loss of vision in the centre of the visual field (the macula) because of damage to the retina. The condition can make it difficult to read, recognise faces or drive safely. Peripheral vision remains intact in most people, and this will allow them to remain independent with most of the other daily activities.

Symptoms:

Blurred or distorted central vision
Difficulty recognizing faces or reading

Causes:

AMD occurs in "dry" and "wet" forms. 90% of AMD patients suffer from the "dry" form.

Dry AMD results in slow progressive loss of central vision. The condition develops as the light-sensitive cells in the macula slowly break down with age.

Wet AMD, also known as exudative or neovascular AMD, is caused by the growth of small, abnormal blood vessels under the retina in the macula. Wet AMD usually arises from pre-existing dry AMD.

Risk Factors:

- Age
- A positive family history for AMD
- Smoking
- Cardiovascular diseases
- Obesity
- Preventive Measures:
 - Annual eye exams over age 50
 - Healthy diet (leafy greens, omega-3s)
 - Avoid smoking and excessive UV exposure

MYOPIC MACULAR DEGENERATION

Myopic macular degeneration (MMD) is a progressive condition that can occur in highly myopic eyes, where elongation of the eyeball leads to degenerative changes affecting the macula (the central retina responsible for detailed vision). MMD may cause central vision impairment.

Symptoms:

Symptoms may include blurred or distorted central vision, difficulty reading, and difficulty recognizing faces. Some individuals may notice straight lines appearing wavy or a central blurry spot. Myopic macular degeneration is different from age-related macular degeneration and occurs specifically in eyes with high myopia.

Risk Factors:

- High myopia with excessive elongation of the eyeball
- Increasing age in individuals with long-standing high myopia
- Structural thinning of the retina and underlying tissues
- Family history of myopic retinal complications

Causes:

MMD arises from stretching and thinning of the retina and underlying tissues in high myopia, which can lead to degenerative changes in the macula and, in some cases, abnormal blood vessel growth.

Preventive Measures:

- Regular eye examinations to detect macular changes early
- Prompt evaluation of new visual distortion, central blur, or sudden vision changes
- Maintain good visual habits and avoid eye strain during prolonged near work
- Manage overall health (e.g., cardiovascular risk factors) to support retinal health

Diabetic Macular Edema (DME)

Diabetic macular edema (DME) is a complication of diabetes in which fluid leaks from damaged retinal blood vessels, causing swelling in the macula. Because the macula is essential for sharp central vision, DME may affect reading and detailed vision.

Symptoms:

Symptoms may include blurred central vision, difficulty reading, reduced contrast, or distortion of central vision. Some individuals may have minimal symptoms in early stages.

Risk Factors:

- Long duration of diabetes mellitus
- Poor blood sugar control
- High blood pressure
- High cholesterol levels
- Presence of diabetic retinopathy
- Kidney disease
- Smoking

Causes:

DME is caused by diabetes-related damage to retinal blood vessels, leading to leakage of fluid and thickening/swelling of the macula.

Preventive Measures:

- Maintain good blood sugar control as advised by your healthcare provider
- Monitor and manage blood pressure and cholesterol
- Attend regular diabetic eye screening and follow-up as recommended
- Seek prompt eye assessment if vision becomes blurred, distorted, or worsens suddenly

HIGH MYOPIA

High myopia is a more severe form of short-sightedness, commonly defined as a refractive error of approximately -6.00 diopters or greater or excessive elongation of the eyeball. It is associated with structural changes in the retina and other ocular tissues.

Symptoms:

Symptoms are similar to myopia and may include blurred distance vision, squinting, eye strain, and headaches. In some cases, individuals may notice visual distortion or reduced visual clarity if complications develop.

Risk Factors:

- Family history of myopia or high myopia
- Early onset of myopia during childhood
- Prolonged near work (e.g., reading or screen use), particularly at close viewing distances
- Limited outdoor activity during childhood and adolescence
- Rapid progression of myopia over time

Causes:

High myopia is primarily related to marked axial elongation of the eye. Genetic predisposition and environmental factors (e.g., prolonged near work and limited outdoor time during childhood) may contribute to its development and progression.

Preventive Measures:

- Regular comprehensive eye examinations to monitor eye health
- Take visual breaks during prolonged near work (e.g., the 20-20-20 rule)
- Maintain healthy visual habits and adequate lighting for reading/screen use
- Seek prompt assessment if new symptoms occur

REFRACTIVE ERRORS ASSESSMENT

Refractive error refers to a group of focusing conditions in which the eye does not focus light accurately onto the retina, resulting in blurred vision. Common types include myopia (short-sightedness), hyperopia (far-sightedness), astigmatism, and presbyopia.

Symptoms:

Symptoms may vary depending on the type and degree of refractive error. Common symptoms may include blurred vision at distance and/or near, eye strain or visual fatigue, headaches after prolonged visual tasks, squinting to see clearly, difficulty focusing, and visual discomfort—particularly during extended reading, computer use, or screen-based activities. Some individuals may also notice fluctuating vision or increased difficulty seeing in low-light conditions.

Risk Factors:

- Family history of refractive error
- Normal variations in eye shape or corneal curvature
- Age-related changes in the eye's focusing ability (presbyopia)
- Visual demands such as prolonged near work or screen use

Causes:

Refractive errors occur when the shape or optical components of the eye cause light to be focused in front of, behind, or unevenly on the retina. Contributing factors include variations in the length of the eyeball, curvature of the cornea or lens, and age-related changes in the eye's focusing ability. Genetic predisposition and normal aging processes play an important role in the development of refractive error.

Preventive Measures:

- Undergo routine eye examinations to detect changes in vision and update optical correction when needed
- Use prescribed glasses or contact lenses to achieve clear and comfortable vision
- Take regular breaks during prolonged near work (e.g., reading or screen use) to reduce visual fatigue
- Ensure adequate lighting during visual tasks
- Seek a vision check if new symptoms such as persistent blur, eye strain, or headaches develop

CHRONIC KIDNEY DISEASE (CKD)

Chronic Kidney Disease is a gradual loss of kidney function over time. Your kidneys filter wastes and excess fluids from your blood, which are then removed in your urine. Advanced chronic kidney disease can cause dangerous levels of fluid, electrolytes and wastes to build up in your body.

Symptoms:

- Fatigue and weakness
- Swelling in legs, ankles, or feet (edema)
- Changes in urination (frequency, volume, or color)
- Sleep disturbances
- Loss of appetite, nausea
- Muscle cramps
- Persistent itching (dry skin)
- High blood pressure
- Shortness of breath (due to fluid in the lungs)
- Chest discomfort (from fluid around the heart)

Causes:

Chronic Kidney Disease occurs when underlying health conditions or diseases gradually impair kidney function, leading to progressive kidney damage over time. This damage disrupts the kidneys' ability to filter waste and maintain fluid, electrolyte, and acid-base balance in the body.

Risk Factors:

- Diabetes and hypertension (most common causes of CKD)
- Family history of kidney disease
- Age (risk increases after age 60)
- Heart disease
- Smoking

Preventive Measures:

- Perform regular health check-ups (blood and urine tests) for early detection, especially for those with risk factors.
- Maintain a healthy lifestyle, including a balanced diet low in sodium, adequate hydration, and a healthy weight.
- Control blood pressure and blood sugar, which reduces kidney strain.
- Avoid kidney-damaging medications such as NSAIDs and other nephrotoxic drugs without medical supervision.

DIABETES

Diabetes is a metabolic disorder where the body cannot properly regulate blood glucose levels. This occurs either due to the lack of insulin production (Type 1 diabetes) or because the body's cells fail to respond to insulin effectively (Type 2 diabetes). Gestational diabetes occurs during pregnancy and typically resolves after delivery but increases future diabetes risk.

Symptoms:

- Frequent urination (polyuria)
- Increased thirst (polydipsia)
- Unexplained weight loss (more pronounced in Type 1)
- Fatigue and weakness
- Blurred vision
- Slow-healing wounds
- Tingling or numbness in hands or feet

Causes:

- **Type 1 Diabetes:** Caused by an autoimmune response where the immune system attacks insulin-producing cells in the pancreas.
- **Type 2 Diabetes:** Results from insulin resistance, where the body's cells do not respond effectively to insulin. Over time, the pancreas may also produce less insulin.
- **Gestational Diabetes:** Hormonal changes during pregnancy can lead to insulin resistance.

Risk Factors:

Modifiable Risk Factors:

- Obesity or being overweight
- Physical inactivity
- Unhealthy diet high in sugar and processed foods
- High blood pressure and cholesterol

Non-Modifiable Risk Factors:

- Family history of diabetes
- Age (risk increases with age, especially for Type 2 diabetes)
- Ethnicity (higher prevalence in certain populations)
- History of gestational diabetes

Preventive Measures:

- Maintain a healthy weight and waist circumference.
- Follow a balanced, low-glycemic-index diet.
- Exercise regularly (moderate-intensity aerobic activity and strength training).
- Monitor blood sugar levels, especially if you have prediabetes or risk factors.
- Manage associated conditions like high blood pressure and cholesterol.
- Avoid smoking and excessive alcohol consumption.

HYPERTENSION

Hypertension (high blood pressure) is a systemic condition characterized by persistently elevated blood pressure. In the eye, hypertension can affect the retinal blood vessels and may lead to hypertensive retinal changes (hypertensive retinopathy).

Symptoms:

Hypertensive retinal changes are often asymptomatic in early stages. In more advanced cases, symptoms may include blurred vision or reduced vision due to retinal vascular damage.

Risk Factors:

- Family history of high blood pressure
- Overweight or obesity
- Physical inactivity
- High-salt or unhealthy diet
- Smoking and excessive alcohol consumption
- Chronic stress
- Co-existing conditions such as diabetes or kidney disease
- Increasing age

Causes:

Ocular involvement occurs when prolonged or poorly controlled high blood pressure damages the retinal circulation, leading to changes in retinal blood vessels.

Preventive Measures:

- Regular blood pressure monitoring and appropriate medical management
- Maintain a healthy lifestyle (balanced diet, regular physical activity, weight management)
- Avoid smoking and limit excessive alcohol intake
- Periodic eye examinations to monitor retinal health, especially for individuals with long-standing hypertension

Dementia

Dementia is a broad term describing a decline in cognitive function that interferes with daily activities. It is not a single disease but a syndrome caused by various conditions affecting the brain. Dementia typically develops gradually and may worsen over time.

Symptoms:

- Memory loss that affects daily functioning
- Difficulty with concentration, planning, or problem-solving
- Changes in language, such as trouble finding words
- Disorientation to time or place
- Changes in mood, behaviour, or personality
- Difficulty performing familiar tasks

Risk Factors:

- Increasing age
- Family history of dementia
- Certain genetic factors
- High blood pressure
- Diabetes
- Physical inactivity
- Poor cardiovascular health
- Smoking

Causes:

- Neurodegenerative conditions: Such as Alzheimer's disease, where brain cells progressively deteriorate
- Vascular causes: Reduced blood flow to the brain due to stroke or small vessel disease
- Mixed causes: A combination of neurodegenerative and vascular changes
- Other conditions: Including head injury, infections, or metabolic disorders

Preventive Measures:

- Maintain good cardiovascular health through regular exercise and balanced nutrition
- Manage chronic conditions such as hypertension and diabetes
- Stay mentally and socially active
- Avoid smoking and excessive alcohol consumption
- Attend regular health check-ups

CHOLESTEROL

Cholesterol is a waxy substance found in the blood and is essential for normal body function. However, elevated cholesterol levels may increase the risk of cardiovascular disease. High cholesterol often develops without noticeable symptoms.

Symptoms:

- Typically asymptomatic
- Often detected through routine blood tests
- In advanced cases, may contribute to cardiovascular complications

Risk Factors:

- Family history of high cholesterol
- Increasing age
- Genetic lipid disorders
- Unhealthy diet
- Physical inactivity
- Obesity or being overweight
- Smoking

Causes:

- Diet high in saturated fats and trans fats
- Reduced physical activity
- Genetic factors affecting lipid metabolism
- Certain medical conditions, such as diabetes or hypothyroidism

Preventive Measures:

- Follow a balanced diet low in saturated and trans fats
- Engage in regular physical activity
- Maintain a healthy body weight
- Avoid smoking
- Undergo routine health screening, including blood lipid testing

CARDIOVASCULAR DISEASE (CVD)

The CVD are a group of disorders of the heart and blood vessels.

- Coronary Heart Disease (CHD), such as myocardial infarction, angina, and coronary artery stenosis.
- Cerebrovascular disease, such as a transient ischemic attack, ischemic stroke, and carotid artery stenosis.
- Peripheral artery disease, such as claudication.
- Aortic atherosclerotic disease, such as abdominal aortic aneurysm and descending thoracic aneurysm.

Symptoms:

- The most common symptom of a stroke is sudden weakness of the face, arm, or leg, most often on one side of the body. other symptoms include sudden onset of:
 - numbness of the face, arm, or leg, especially on one side of the body;
 - confusion, difficulty speaking or understanding speech;
 - difficulty seeing with one or both eyes;
 - difficulty walking, dizziness and/or loss of balance or coordination;
 - severe headache with no known cause; and/or fainting or unconsciousness.

Risk factors:

- The most important behavioural risk factors of heart disease and stroke are unhealthy diet, physical inactivity, tobacco use and harmful use of alcohol. Amongst environmental risk factors, air pollution is an important factor. The effects of behavioural risk factors may show up in individuals as raised blood pressure, raised blood glucose, raised blood lipids, and overweight and obesity. These "intermediate risks factors" can be measured in primary care facilities and indicate an increased risk of heart attack, stroke, heart failure and other complications.

Preventive Measures:

- Healthy Lifestyle
- Eat a balanced diet rich in fruits, vegetables, whole grains, lean proteins, and healthy fats

Stay physically active:

- Adults: ≥ 150 min/week of moderate activity
- Children: ≥ 60 min/day
- Avoid smoking, vaping, and second-hand smoke exposure
- Maintain a healthy weight (BMI < 25)

Get enough sleep:

- Adults: 7–9 hours/night
- Children: 8–12 hours/night (age-dependent)
- Monitor Key Health Indicators
- Keep non-HDL cholesterol in a healthy range
- Control blood sugar, especially HbA1c if diabetic or prediabetic
- Maintain blood pressure below 120/80 mm Hg
- Manage Chronic Conditions

Regularly check and control:

- High blood pressure
- High cholesterol
- Diabetes
- Kidney disease

DISCLAIMER

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