



## Neuro-Ophthalmology

Conditions - <i>Click for more details</i>	Physicians
<ul style="list-style-type: none"> <li>● <a href="#">Diplopia</a></li> <li>● <a href="#">Anisocoria – Unequal Pupils</a></li> <li>● <a href="#">Visual Disturbances</a></li> <li>● <a href="#">Migraine</a></li> <li>● <a href="#">Eyelid and Facial Spasm</a></li> <li>● <a href="#">Blepharospasm</a></li> <li>● <a href="#">Hemifacial Spasm</a></li> <li>● <a href="#">Myasthenia Gravis</a></li> <li>● <a href="#">Eye Movement Disorders</a></li> <li>● <a href="#">Third Cranial Nerve (Oculomotor Nerve) Palsy</a></li> <li>● <a href="#">Fourth Cranial Nerve (Trochlear Nerve) Palsy</a></li> <li>● <a href="#">Sixth Cranial Nerve (Abducens Nerve) Palsy</a></li> <li>● <a href="#">Optic Neuritis</a></li> <li>● <a href="#">Optic Neuropathy</a></li> <li>● <a href="#">Temporal Arteritis</a></li> <li>● <a href="#">Brain Tumors Causing Vision Loss</a></li> </ul>	<p style="text-align: center;"><a href="#">Swaraj Bose, M.D.</a> <a href="#">R. Wade Crow, M.D.</a></p>



### CATARACT SURGERY

Marjan Farid, M.D.  
Sumit (Sam) Garg, M.D.  
Ronald Gaster, M.D.  
Sameh Mosaed, M.D.  
Roger Steinert, M.D.

### COMPREHENSIVE

R. Wade Crow, M.D.  
M. Christina Kenney, M.D., Ph.D.  
Linda Lippa, M.D.

### CORNEA SURGERY

Marjan Farid, M.D.  
Sumit (Sam) Garg, M.D.  
Ronald Gaster, M.D.  
Roger Steinert, M.D.

### EYELID, ORBIT, & TEARING

Swaraj Bose, M.D.  
Jeremiah Tao, M.D.

### GLAUCOMA

George Baerveldt, M.D.  
Sameh Mosaed, M.D.

### NEURO-OPHTHALMOLOGY

Swaraj Bose, M.D.  
R. Wade Crow, M.D.

### OPHTHALMIC PLASTIC & RECONSTRUCTIVE SURGERY / OCULOFACIAL COSMETIC SURGERY

Jeremiah Tao, M.D.

### PEDIATRIC OPHTHALMOLOGY

Robert Lingua, M.D.  
Jennifer Simpson, M.D.

### REFRACTIVE SURGERY

Marjan Farid, M.D.  
Sumit (Sam) Garg, M.D.  
Ronald Gaster, M.D.  
Robert Lingua, M.D.  
Roger Steinert, M.D.

### RESEARCH

Lbachir BenMohamed, Ph.D.  
Donald Brown, Ph.D.  
James Jester, Ph.D.  
Tibor Juhasz, Ph.D.

### Diplopia – Double Vision

Diplopia, also known as double vision, occurs in one of two ways. The double vision is either present with one eye open (monocular diplopia) or only with both eyes open (binocular diplopia). Monocular diplopia is almost always attributable to the focusing elements of the eye. Binocular diplopia occurs when there is misalignment of the eyes. Examples of binocular diplopia include esotropia (crossing of the eyes) or exotropia (one eye “wanders” away to the side).

Symptoms of diplopia include seeing a single object as two images. The two images may appear to be seen horizontally, vertically or diagonally.

Treatment for diplopia depends on the underlying cause. Options include glasses with prism lenses, vision therapy, Botox therapy, or surgery.

[top of page](#)

### Anisocoria – Unequal Pupils

Unequal pupil sizes, called anisocoria, is a common vision condition. While it is normal for pupils to be slightly different size, large or new anisocoria should be evaluated. Unequal pupil size can be related to a completely benign condition or a life-threatening illness.

Medications, either eye drops or oral, are a common cause of a harmless change in pupil size. More serious causes of unequal pupil size may be due to aneurysm, bleeding inside the skull, brain tumor, excess pressure on an eye due to glaucoma, meningitis, encephalitis, migraines, or seizures.

It is important to see a doctor when there is a persistent, sudden or unexplained change in the size of pupils. It is also important to seek immediate medical attention for a head or eye

injury. Also seek medical attention if pupil sizes differ and are paired with blurry vision, double vision, sensitivity to light, a fever, headache, loss of vision, nausea, vomiting, a stiff neck and severe eye pain.

To make a proper diagnosis, a doctor may run blood tests, cerebrospinal fluid tests, CT scans, EEGs, MRI, tonometry to screen for glaucoma and X-rays of the neck and skull. Recommendations vary from simple observation to medical or surgical treatment depending on the underlying cause of the condition.

[top of page](#)

---

### Visual Disturbances

Many neurological disorders present with visual symptoms. However, these symptoms are often difficult to describe. Any visual disturbances associated with other neurologic symptoms such as numbness, weakness, loss of coordination, difficulty speaking or swallowing, trouble walking, or loss of bowel or bladder control should be assessed by a Neuro-ophthalmologist.

Visual disturbances are often associated with neurological disorders such as double vision, nystagmus, reduced visual field and acuity, a full or total loss of vision due to papilledema or a swollen optic disc. Visual disturbances can be symptoms of other conditions, including neurological disorders, muscular disorders, vascular disease, cancers or trauma. Patients with diabetes or hyperthyroidism may experience visual disturbances. In some cases, patients with hereditary congenital conditions also may have visual disturbances.

[top of page](#)

---

### Migraines

Migraine syndromes often include a number of visual symptoms. The most common of these are visual auras. Visual Auras are a wide range of visual phenomenon including flashes of light, spots, moving colors, or kaleidoscopic patterns. Other symptoms include sensitivity to light, sensation of being overwhelmed by complex patterns, or eye pain. Hormonal changes, medications, chemicals in foods and even flashing lights can cause migraines. The migraine episode may only last a few minutes, but typically lasts about 20 to 30 minutes. Usually an ocular migraine does not require treatment and does not cause permanent brain or visual damage. However, it is recommended that you stay still during the migraine episode for safety reasons. If there are lingering visual symptoms, the migraines occur regularly or are increasing in frequency, see a doctor. Medications may be prescribed to help control the frequency or severity of these migraines.

[top of page](#)

---

### Eyelid and Facial spasm

Eyelid spasms are small muscle spasms that may occur in the upper or lower eyelid. Typically, these twitches are harmless spasms in the muscles around the eye. They can be felt by the patient and sometimes seen by others. Although the spasms can be disturbing, they typically last no more than a few hours and are sporadic in nature.

However, in some more serious cases, the spasms can last for several weeks. A patient who is experiencing deep spasms in the face or eyelid should contact a doctor immediately.

Some causes of an eyelid spasm can include the following:

- Eye strain from computer use, reading in improper light or from handwork like sewing
- Squinting due to being in the sun or reading
- Drinking too much caffeine
- Exhaustion
- Short-term stress, nervousness or anxiety

**Additional types of spasms include:**

#### Blepharospasm

This is an extreme form of eyelid spasm. Blepharospasm affects both the upper and lower eyelids, on both sides, and may include the eyebrows. The eyes close involuntarily and may be difficult to reopen. This may be particularly dangerous while driving.

#### Hemifacial Spasm

This is another extreme form of eyelid spasm. In this condition one side of face will spasm including the eyelids as well as the cheek and lower face.

Treatments: Most minor eyelid spasms do not require special treatment. In some cases removing

M. Christina Kenney, M.D., Ph.D.  
Henry Klassen, M.D., Ph.D.  
Anthony Nesburn, M.D.  
Steven Wechsler, Ph.D.

#### RETINA/VITREOUS

Stephanie Lu, M.D.  
Baruch Kuppermann, M.D., Ph.D.  
Ron Kurtz, M.D.

**For ophthalmology appointments, please call:**

**UC Irvine Medical Center  
714-456-7183**

**UC Irvine Gottschalk  
Medical Plaza  
949-824-2020**

**Laser Refractive Surgery  
949-824-9970**

**FIND A DOCTOR**



the stressor will help with the spasms. Some doctors recommend reducing the amount of caffeine and/or artificial sweeteners being consumed.

Patients with blepharospasm and hemifacial spasm may require more involved treatment, including medications, botulinum injections (commonly known as Botox) or even surgery.

[top of page](#)

---

### **Myasthenia Gravis**

Myasthenia gravis is a neuromuscular disorder causing weakness of voluntary muscles, particularly those which control eye movement and eye opening. Ocular symptoms often include double vision and eyelid drooping. Muscle function often improves with rest. While visual symptoms are very common, other muscles throughout the body may be affected causing symptoms of fatigue, weakness, facial paralysis, and even difficulty with breathing or swallowing.

Treatments: There is no a cure for the condition but treatments often include medications and various visual aids.

[top of page](#)

---

### **Eye Movement Disorders – Cranial Nerve Palsies**

Eye movement disorders are frequently the result of paralysis of a cranial nerve. Three cranial nerves (on each side) are responsible for controlling eye movements. They include third (oculomotor) nerve palsy, fourth (trochlear) nerve palsy and sixth (abducens) nerve palsy.

[top of page](#)

---

#### **Third Cranial Nerve (Oculomotor Nerve) Palsy**

Third cranial nerve palsy, also known as oculomotor nerve palsy, can result from head injuries, aneurysms, hemorrhages, tumors, or diabetes.

The symptoms include one eye turning outward while the other is oriented normally, causing double vision. The affected eye is unable to move past the middle when looking inward and is unable to move up and down. There also may be problems with eyelid drooping and dilation of the pupil on the affected side. In some cases the condition causing the palsy may worsen, for example, when a sudden, severe headache occurs due to a ruptured aneurysm.

Treatment will be determined after a neurological exam and testing. Emergency treatment may be required if a life-threatening condition is causing the palsy.

[top of page](#)

---

#### **Fourth Cranial Nerve (Trochlear Nerve) Palsy**

The cause of a fourth cranial nerve palsy, or a trochlear nerve palsy, is not always easy to identify. The majority of cases are due to head trauma and stroke; however there are many other causes. Urgent evaluation should be obtained for any patient experience new double vision.

The most common symptom is vertical double vision. The two images will appear to be misaligned up and down. Often people will experience some horizontal displacement as well resulting two images diagonal from one another.

Treatment for this type of palsy may include patching, prisms, or even surgery if necessary.

[top of page](#)

---

#### **Sixth Cranial Nerve (Abducens Nerve) Palsy**

Sixth cranial nerve palsy, also referred to as Abducens nerve palsy, can be caused by a head injury, brain tumors, infections, aneurysms, or multiple sclerosis. Depending on the condition, there may be increased pressure on the affected nerve or a decrease in blood flow to the nerve.

Symptoms include horizontal double vision where the two images are side by side. The affected eye is unable to move fully outward and may also move inward when the patient is trying to look straight ahead. Additional symptoms may occur depending on the underlying condition however headaches are quite common.

Treatment of sixth nerve palsy depends on the cause. Once the underlying cause is determined the palsy typically resolves itself.

### **Optic Neuritis**

Optic Neuritis is an inflammatory condition of the optic nerve which leads to sudden vision loss and often pain with eye movement on the affected side. The vast majority of cases are idiopathic (meaning medical science has yet to find the cause). In a small minority of patients optic neuritis might be the first symptom of Multiple Sclerosis (MS). The vision loss in optic neuritis returns to normal, or near normal, in most cases without any medical intervention. However, some medications can be used to hasten the recovery of vision.

[top of page](#)

---

### **Optic Neuropathy**

Optic neuropathy is defined as damage to the optic nerve often due to ischemia, toxins, vascular or blood pressure issues, or pressure within the eye. The most common cause of optic neuropathy is anterior ischemic optic neuropathy. Anterior ischemic optic neuropathy is caused by blood flow interruption to the optic nerve as it enters the back of the eye.

Symptoms include a severe loss of vision either suddenly or over many days, or visual field deficiencies. At the time of vision loss there will be swelling inside the eye which can be detected by an eye care professional. The condition often occurs in the middle-aged or elderly.

There are numerous causes of optic nerve damage. When visual symptoms are attributed to damage of the optic nerve a search begins to find the cause. Usually damage to the optic nerve is irreversible. It is important find out what damaged the optic nerve so that the other eye doesn't become involved as well.

[top of page](#)

---

### **Temporal Arteritis**

Temporal arteritis occurs when blood vessels on the scalp and in the head become inflamed and damaged. If the blood vessels going to the eye are affected then vision loss can result.

Symptoms of temporal arteritis include fever, excessive perspiration, feeling ill, intermittent jaw pain, achy muscles, headaches on the side or back of the head, a sensitive scalp, reduced, blurred or double vision.

Treatment of temporal arteritis focuses on reducing the amount of tissue damage that has occurred due to restricted or lack of blood flow. Medication may be recommended to reduce inflammation or suppress the immune system.

[top of page](#)

---

### **Brain Tumors Causing Vision Loss**

Brain tumors can cause vision loss through inflammation or pressure on areas of the brain that control vision. Not all brain tumors are malignant (cancerous), in fact most are not. Unfortunately, that doesn't mean that they can't cause problems by just being there and placing pressure on the brain.

There are several symptoms associated with brain tumors depending on the areas of the brain affected by the tumor. Visual symptoms can often be the first sign of a brain tumor. Sudden vision problems including blurry vision, double vision or a loss of side or peripheral vision often occur. New or suddenly different headaches may often occur. Treatment of brain tumors depends on the type of tumor and the age of the patient. Options may include surgery, drug therapies, radiation therapy, chemotherapy, or any combination of these treatments. A multidisciplinary approach is critical to the successful management of brain tumors. A team of neuro-oncologists, neurosurgeons, radiation oncologists, and neuro-ophthalmologists need to work together on these complicated cases.

[top of page](#)

**For ophthalmology appointments, please call:**

**UC Irvine Medical Center  
714-456-7183**

**UC Irvine Gottschalk  
Medical Plaza  
949-824-2020**

**Laser Refractive Surgery  
949-824-9970**



The **Gavin Herbert Eye Institute** provides services to the following regions:

**Orange County:** Aliso Viejo, Anaheim, Brea, Buena Park, Costa Mesa, Cypress, Dana Point, Fountain Valley, Fullerton, Garden Grove, Huntington Beach, Irvine, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, La Habra, Lake Forest, La Palma, Los Alamitos, Mission Viejo, Newport Beach, Orange, Placentia, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Santa Ana, Seal Beach, Stanton, Tustin, Villa Park, Westminster, Yorba Linda

**Riverside County:** Banning, Beaumont, Blythe, Calimesa, Canyon Lake, Cathedral City, Coachella, Corona, Desert Hot Springs, Eastvale, Hemet, Indian Wells, Indio, Jurupa Valley, Lake Elsinore, La Quinta, Menifee, Moreno Valley, Murrieta, Norco, Palm Desert, Palm Springs, Perris, Rancho Mirage, Riverside, San Jacinto, Temecula, Wildomar

**San Bernardino County:** Adelanto, Apple Valley, Barstow, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, Victorville, Yucaipa, Yucca Valley

**San Diego County:** Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista

**Los Angeles County:** Agoura Hills, Alhambra, Arcadia, Artesia, Avalon, Azusa, Baldwin Park, Bell, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Canada Flintridge, La Habra Heights, Lakewood, La Mirada, Lancaster, La Puente, La Verne, Lawndale, Lomita, Long Beach, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palmdale, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, Whittier eye doctors eye surgery eye surgeons

[Home](#) | [Patient Care](#) | [Comprehensive](#) | [Cataract](#) | [Cornea Surgery](#) | [Refractive Surgery](#) | [Glaucoma](#) | [Pediatric Ophthalmology](#) | [Eyelid, Orbit, & Tearing](#) | [Retina/Vitreous](#) | [Neuro-Ophthalmology](#) | [Research](#) | [Education](#) | [Residency](#) | [Fellowship](#) | [Lecture Schedule](#) | [Contact Us](#) | [Philanthropy](#) | [Downloads](#) | [Links](#)

©2011 UC Irvine - Department of Ophthalmology. All rights reserved.