**Endothelial Cell Count** - A means by which the number of corneal endothelial cells are quantified. We are all born with a fixed number of corneal endothelial cells which naturally die over time and are not replaced. However, trauma and certain eye diseases, such as glaucoma, uveitis, and Fuch’s Dystrophy, can accelerate the loss of these cells, potentially necessitating a corneal transplant. By quantifying these cells, eye physicians can track the status of the endothelium and be better able to detect and treat ailments before irreversible damage occurs.

This non-invasive test takes roughly 3 minutes to complete. During this time, the patient will sit down and stare at a fixed point while the cell counter images the eye via a flash photo. The procedure is then repeated for the other eye.

**Ultra-WideField Fundus Photography**
A non-invasive way to image large portions of the retina for future comparison. While most cameras can only image 45 degrees of the retina, our confocal scanning laser ophthalmoscope can image 200 degrees, allowing our physicians to see further out into the periphery of the retina where pathology can go unnoticed. Our camera can also perform auto-fluorescence imaging to examine cellular damage to the retina as well as fluorescein angiography to visualize the blood vessels of the retina.

This test takes roughly 5 minutes to complete. During this time, the patient will sit in front of the camera and view a blue target that will change color when the patient is properly focused. A bright flash of light will be seen during image capture. The procedure is then repeated for the other eye.

**Anterior Segment Tomography**
A non-invasive means by which a 3-D reconstruction of the front of the eye can be generated and analyzed for diseases of the front of the eye, such as Keratoconus. Results from this test can also be used to examine the thickness of the cornea, needed for accurate Tonometry, as well as examine refractive errors, such as astigmatism, with high resolution for either specialized glasses / contact lens fits or LASIK evaluations.

This test takes roughly 5 minutes to complete. During this time, the patient will sit down and stare at a red/blue dot while a camera rotates around the eye. The procedure is then repeated for the other eye.

**When should I have these tests?**
Your eye physician will determine when it is appropriate for you to have a specific test. Ask your eye physician more for details.
Cutting Edge Equipment for the Betterment of Your Eye Health

They say you are only as good as your tools. And when it comes to your eyes, the offices of Dr. Mabel MP Cheng have spared no expense – we utilize only the best and most modern equipment, representing the gold standards in medicine and eye testing technology, for the assessment and maintenance of your vision. We proudly offer a wide variety of tests that can be performed in-house during your office visit for your convenience.

This second installment of Healthy Vision and You focuses on the tests performed at our office, why they are important, and how they are done.

Common Tests Performed in the Office

**Visual Acuity Assessment** — A non-invasive test that examines how well you can see up close and far away. In some instances, this is done for legal purposes such as determining if a patient is fit to drive a car. This 10-minute test is generally accomplished by looking at a chart containing letters of different sizes and reading the letters back to a technician.

**Refractions** — An extension of a visual acuity test. This non-invasive test, performed manually or with a machine, determines the strength of the corrective lenses (glasses) or contacts that are needed for you to see clearly.

**Tonometry** — A way to assess the pressure inside the eye, also known as intraocular pressure (IOP). This assessment is critical for monitoring eye health and is especially important in the management of glaucoma. Tonometry is a fast test that involves a technician or a doctor briefly touching your eye with a device that measures your IOP.

**Tear Osmolarity Test** - The tear osmolarity test is used to measure the composition of your eye's tears. The results of this test give insights into whether the tears you produce are good enough to lubricate the cornea. Poor tears or not enough tears result in Dry Eye Disease.

This test takes roughly 2 minutes to complete. During this time, a technician will obtain a small sample of your tears from the corner of your eye and analyze it in the Tearlab machine.

**Visual Field (VF) Test** - A non-invasive test that examines a patient's central and peripheral field of view. The results from this test notify the eye physician of any significant changes the patient has in their field of view. These data are very useful in the early diagnosis and monitoring of, glaucoma patients, macular degeneration patients, patients that have received trauma to the eye, as well as patients on certain drugs that may be toxic to the eye (e.g. plaquanil).

This test takes 15 minutes to complete and requires patient participation. During the test, the patient will sit and stare at a fixed point within the analyzer. The analyzer will then flash a series of lights in various places while the patient clicks a button to indicate that he/she has seen the flash. Please note that clicking or trying to rush through this test actually results in a longer testing period.

**Optical Coherence Tomography (OCT)** - a non-invasive test that utilizes light to examine the different layers of tissue in the retina (or cornea when applicable). By measuring the thickness of these tissues, eye physicians can better detect, diagnose, and treat certain retinal (or corneal) diseases, especially macular degeneration and diabetic retinopathy. It is also useful in assessing the health of the optic nerve, which may be damaged by diseases such as glaucoma.

The test is generally conducted while dilated and takes a few minutes to complete. During that time, the patient sits and stares at a fixed point while the OCT scans the eye. The procedure is then repeated for the other eye.