

Not Just an Eye Exam

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In the world of optometry, there are always new patients who have a limited understanding of a comprehensive exam. The patient who is used to sitting down and reading the eye chart, buying his or her glasses, and walking out with them in less than an hour is very likely uneducated about the importance of comprehensive eye care. Patients call daily to book eye exams for “glasses,” sometimes unaware that there is a much deeper need for a comprehensive exam. A paraoptometric gets the pleasure of introducing these patients to a new way of experiencing eye health care. The flow in which an office moves a patient can vary greatly from practice to practice, but each element outlined in this paper differentiates a comprehensive exam from a quick “box store” refraction.

After checking in for the exam, the patient is pulled into an exam room for a thorough case history. It is a para’s job to do the detective work on each patient who enters the clinic. Patients will rarely volunteer information regarding their physical systems while in the exam chair because they rarely understand the importance of the interplay of physical health with their ocular health. In the para profession, it’s a daily occurrence; you ask the patient if they have any medical conditions and the patient chuckles or scoffs “nothing that pertains to my eyes” or “what does that have to do with my glasses?” A patient is usually unaware of the relationship between systemic diseases and their eye health. It is imperative that all medical conditions be documented. Auto-immune diseases, inflammatory conditions, heart disease, diabetes, thyroid dysfunction, and neurological issues can cause an avalanche of ocular symptoms, and sometimes even permanent changes in the visual system.

The case history starts with finding out the reason for the visit. Sometimes a patient will say they have no chief complaint, and they’re just in for an annual exam. Other times the patient may list some concerns that the para should document accordingly. A chief complaint is a concise note in the patient’s own words about his/her reason for the visit.

If the patient doesn't have a complaint and is just in for a routine visit, it should also be documented in the chief complaint as "no vision issues" or "annual exam." Next, you gather HPI (history of present illness) in regard to the complaint. HPI should be documented by at least five qualifiers for coding purposes. These qualifiers are location, quality, severity, duration, onset, context, modifying factors, and signs and symptoms. Next, the para gathers information on the patient's primary care physician, medical history, ocular history, familial health and ocular history, social history, medication documentation, height, weight, and blood pressure.

It is important to know what types of medications a patient routinely takes, as well as medication families to which a patient is sensitive. Medications used to treat symptoms



of the disease can affect overall retinal health. Some medications can cause temporary or permanent changes to the visual system. Side effects can be as harmless as dilated pupils, but some more serious interactions can damage macular tissue causing permanent loss of vision. If a patient is on a high-risk medication, additional testing may be necessary to

monitor changes and effects over a sustained period of time.

The more thorough a para is at gathering case history, the better the chance is that an undiagnosed systemic or ophthalmic disease may be discovered. It is often in these moments of revelation that the patient realizes the interconnectivity of all bodily functions, and hopefully understands why such thorough case history is performed. The comprehensive exam is a beautiful cycle that validates and confirms physical condition. Even if the patient doesn't fully grasp this concept, it's always very rewarding to know that you are playing an active role in influencing an individual's life for the better.

Once thorough documentation of patient history is completed, the technician can move on to the assessment of visual binocularity, color vision, and acuity, and then the physical appearance of the structures of the eye.

Binocularity is passed with a few tools. A pair of red/green glasses and a Worth Dot plate can be used to make sure patients have fusion. A pair of stereopsis glasses are used to

further test a patient's ability to use eyes together as a team. The measure of their ability to fuse is calculated in seconds of arc. Additionally, a measurement of pupil diameter in dim and bright conditions should be documented, as well as binocular and monocular visual acuity with a Snellen or Jaeger chart.

The eyelids and lashes can be evaluated with photography, or with a Lipiview® machine, but in many practices, the doctor will do this evaluation under the slit lamp during the exam as well. Looking at the lids and lashes can be integral in diagnosing infections, skin or conjunctival growths, and in some cases dry eye disease. The eyelid is an integral part of the function of the eye. Every blink produces hydration for the avascular corneal tissue. Analyzing meibomian glands and the mechanics of the blink are an important step in a comprehensive exam. Next, the cornea and front surface evaluation are done. This can be acquired with a wavefront machine, keratometer, or under the slit lamp with the doctor. Corneal diseases such as keratoconus, pellucid marginal degeneration, and basement membrane dystrophy, among others can be diagnosed while assessing the corneal surface.



Figure 1



Figure 2

The next structure that a para gathers information on is the retina. The eye is essentially a window for a physician to be able to observe nerve structure and blood flow in the human body. Fundus photography, B-scans, OCT and visual fields screening, and electrophysiology screenings are all tests that are used to evaluate the retinal structures and functions but are also a way to observe vascular and neurological health without surgical exploration. By imaging the retina in either two dimensions with a retinal camera, or in

three dimensions with an OCT, the doctor receives important data that can be used to diagnose so many vision-threatening diseases like diabetic and hypertensive retinopathy, macular degeneration, glaucoma, stroke, tumors, neurological conditions like pseudo-tumor, papilledema, concussions; the list could go on and on. Imaging services allow the practice to keep detailed records from year to year on retinal health so small changes can easily be detected. Before such imaging existed, a quick look around the retina was done by the doctor and documented in the exam notes.

Next, a patient's visual functionality is assessed. During this assessment, a patient will participate in binocular functionality tests where the doctor or assistant assesses how the eyes work as a team. This can be done with a variety of tools and observations on behalf of the examiner. Accommodative faculty testing is another step in this part of the exam. This testing assesses the patients near accommodative capacity. Accommodative capacity is the eye's ability to change power to accommodate a variety of different visual tasks.

Finally, the refraction is done. This is where the doctor determines a final RX based off of the patient's visual needs by trying out a variety of lenses in front of the patient's eyes to obtain the desired clarity of vision. Once final refraction is complete the doctor makes suggestions on eyewear to fit the patient's individual needs. This may mean a pair of occupational glasses for use at the computer, a pair of sunglasses, safety eyewear, etc.

In conclusion, a comprehensive eye exam isn't just a patient reading an eye chart and getting a pair of glasses. This type of eye exam assesses the overall health of a person's eyes as it relates to the health of their entire being. This comprehensive approach to eye health empowers a patient to understand how overall health awareness can set them up for success in everyday life through visual functionality.

Image credits: Figure 1 LipiView® imaging system courtesy of Tear Science Marketing
Figure 2: Image courtesy of Optos, Inc. and Dr. Seenu Hariprasad, MD

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