



What To Expect From an Eye Examination – Part I

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Type 1 diabetic since 1968

Now that we have considered the various kinds of diabetic eye disease, the treatments available for each, the results of clinical research, and some recommendations for avoiding or minimizing eye complications, let's discuss the elements of a thorough diabetic eye examination.

It is unlikely that any two eye doctors (or any kind of doctors) will conduct an examination in exactly the same way; Procedures, techniques and explanations that work well for one health care provider may not work for another, and vice versa. Here, it is simply my aim to describe and explain the fundamentals of an eye exam that will allow you to ask the right questions and assess the thoroughness of your examination experience.

All eye examinations should start with a detailed 'case history.' Patients often ask why so much general health information is required for an eye examination, and the answer is really quite simple: Because the eyes are connected (via the blood stream and nervous system) to every part of the body, and because the eyes and vision are affected by many general health conditions, medications, and genetic influences which are shared by or inherited from your family members.

Diabetics, in particular, should be asked about how long they have had diabetes, the specific medications they are using for diabetes treatment, the previous diagnosis of any diabetes complications (eye, kidney, nerve or vascular), the frequency and range of home blood glucose readings, the most recent home reading, and the results of their last glycosylated hemoglobin test.

As we have seen in previous chapters, the answers to these questions will give the eye doctor a good sense of overall diabetes control and the likelihood of finding eye complications. **The patient's responsibility is to know the answers to these very important questions.**

After conducting a case history, the patient is typically asked to read the eye chart wearing any corrective lenses previously prescribed.

This is not a test, nor anything to be embarrassed about if the letters are unclear. Guessing is absolutely allowed, as the true definition of "visual acuity" is the smallest letters that can, *just barely*, be identified correctly.

The results allow the doctor to gauge just how far off the prescription might be, or the effects of any eye diseases (cataracts, diabetic retinopathy, keratopathy, to name just 3 of many possibilities) that will be uncovered in subsequent parts of the eye exam.

A test of 'stereopsis' (stereo vision, or the ability to see three-dimensionally) may be given, which precisely measures depth perception and helps evaluate how well the two eyes work together. Color vision testing also may be performed. In my experience, this is an important test, as academic research (including a study in which I participated while in optometry school) shows that diabetic retinopathy can cause short wave length ("tritan" aka "blue/yellow") color vision defects. In fact, some researchers believe that subtle, acquired color vision deficiencies may precede the earliest stages of diabetic retinopathy by months to years.

I have consistently uncovered blue/yellow color vision deficits in longstanding diabetic patients without ophthalmoscopically detectable retinopathy, primarily through use of "short wave length automated perimetry" (SWAP), a sophisticated visual field test that isolates function of the retina's blue/yellow cones (S-cones).

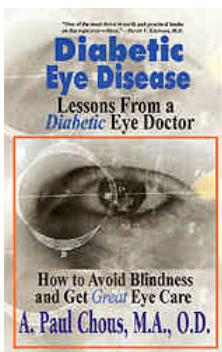
The patient's **pupil reactions** should be evaluated by shining a bright light into each eye. This checks the neurological integrity of the connections between the optic nerve and the brain, and many optic nerve diseases (including advanced glaucoma and ischemic optic neuropathy) may be first detected this way. Many diabetics are found to have 'sluggish' pupil responses, and this suggests some degree of autonomic neuropathy affecting Cranial Nerve III.

The patient also is asked to **follow a moving target** with her eyes only, which allows the doctor to evaluate the function of the six extra-ocular muscles and assess any possible paresis or double vision from diabetic nerve palsy.

Coming next week: Elements of a Thorough Diabetic Eye Examination in Part II

Lessons from a Diabetic Eye Doctor: How to Avoid Blindness and Get Great Eye [More Info:](#)

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Dr. Paul Chous received his undergraduate education at *Brown University* and the *University of California at Irvine*, where he was elected to *Phi Beta Kappa* in 1985. He received his Masters Degree in 1986 and his Doctorate of Optometry in 1991, both with highest honors from the *University of California at Berkeley*. Dr. Chous was selected as the *Outstanding Graduating Optometrist* in 1991. He has practiced in Renton, Kent, Auburn and Tacoma, Washington for the last 12 years, emphasizing diabetic eye disease and diabetes education. Dr. Chous has been a Type 1 diabetic since 1968. He lives in Maple Valley, Washington with his wife and son.