The Centers for Disease Control and Prevention predicts that by the year 2030 the number of blind and visually impaired people will double. This prediction has the potential to impact millions of Americans’ sight and quality of life as they age. Regular eye examinations provide baselines from which Blacksburg Eye can monitor eye health for even the smallest changes. We believe in the philosophy of early detection and preventative care; the earlier we can detect change, the better we can manage it to help and prevent any ocular or systemic damage.

Below are some case studies of patients seen in this office. These patients all opted for the digital retinal photography screening procedure and they all have something in common: early detection was crucial in protecting eyesight and overall health.

**Case Study 1**
A 38 year old female came in for an eye exam because she was beginning college courses and having trouble focusing on the computer. As part of the exam, digital fundus photography was performed. The results from both eyes clearly indicated signs of high cholesterol, most notably a free cholesterol embolus that was lodged in a branch of the ophthalmic artery. The patient was urgently referred to the emergency room and to seek care with her primary care physician. She has been since diagnosed with high cholesterol and has started related medication and a diet. Had another embolus broken free it could have traveled to the brain. Detecting this condition and prompt referral prevented the patient from having a stroke and possibly saved her life.

**Case Study 2**
A 24 year old female came in for an eye exam because she was experiencing some mild headaches for the previous few months. As part of the exam, digital fundus photography was performed. The results from both eyes clearly showed signs of papilledema, which is a sign of increased fluid-pressure in the brain. This patient was urgently referred to the emergency room for the potentially life-threatening condition, where an MRI, lumbar puncture, and thorough physical were done. The patient was diagnosed with pseudo-tumor cerebri (PTC), and has since been put on medications to control the fluid-pressure. Her headaches have resolved and her vision has stabilized. Documenting this condition with fundus photography is critical for detecting small changes in optic nerve swelling, a sign that cerebrospinal fluid pressure may be too high.

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**Normal Healthy Eye**
A. Macula: Center of visual axis, responsible for “20/20”
B. Optic Nerve Head: The face of Cranial Nerve Two (CN II), composed of around 1.2 million nerve fibers
C. Retinal Vasculature: Arteries and veins, seen looking through the blood vessel wall (like an ultrasound)

**Diabetic Retinopathy**
A. Exudate and Macular Edema: Cholesterol and proteins leaked from damaged blood vessels
B. Retinal Hemorrhages: Blood that has leaked out of the retinal vasculature

**Glaucoma (or Suspect)**
A. Enlarged cup-to-disc ratio: As glaucoma damages the optic nerve, the rim tissue thins out, giving the appearance that the hole in the middle is growing larger over time; this would indicate additional testing to rule glaucomatous optic neuropathy

**Papilledema**
A. Optic nerve head swelling: A sign of pressure on the optic nerve from behind the eye
B. Splinter hemorrhages: Because the optic nerve head is swollen and congested, the blood vessels become compressed and can leak or burst

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*Example Photos On Other Side*