The Retina

• Thin layer of light-sensitive tissue at the back of the eye (the film of the camera).

• Light rays are focused on the retina then transmitted to the brain.

• The macula is the very small area in the center of the retina responsible for your pinpoint vision.
The Human Eye

Cornea
Pupil
Iris
Lens
Retina
What is Diabetic Retinopathy?

- Most common diabetic eye disease.
- Occurs where blood vessels in the retina swell, leak, close off, or when new blood vessels grow on the surface of the retina.
- Usually affects both eyes.
- May not cause symptoms in the early stages, but may progress to permanent visual loss.
Normal Retina

Changes from Retinopathy
Types of Diabetic Retinopathy:

- Background or Non-Proliferative Diabetic Retinopathy
- Proliferative Diabetic Retinopathy
Non-Proliferative Diabetic Retinopathy

- Early stage where damaged blood vessels begin to leak.
- Fluid, blood, and/or deposits of cholesterol and fat may leak into the retina.
Changes Seen In Non-Proliferative Diabetic

- Microaneurysms
- Retinal Hemorrhages
- Hard Exudates
- Macular Edema
- Macular Ischemia
Proliferative Diabetic Retinopathy

- Many blood vessels in the retina close preventing normal blood flow
- New blood vessels form (Neovascularization)
Non-Proliferative Retinopathy
PDR: Neovascularization
Causes Bleeding and Scar Tissue

- Vitreous Hemorrhage
- Traction Retinal Detachment
- Neovascular Glaucoma
Who Is At Risk For Diabetic Retinopathy?

- Type I Diabetes
- Type II Diabetes
- Gestational Diabetes
Risk Factors:

- **Blood Sugar Control**: Lower blood sugar levels can delay onset and slow progression of Diabetic Retinopathy.

- **Blood Pressure**:  
  - Control of Blood Pressure reduces risk of retinopathy and loss of vision by 33%  
  - Target Blood Pressure in Diabetes is 130/80  
  - Only 20% of patients achieve this target
Risk Factors

• **Blood Lipid Levels**-(Cholesterol and triglycerides)
  -Cholesterol blood lipid levels associated with accumulation of exudates (protein deposits that leak into retina)
  -Can be associated with significant visual loss.

• **Duration of Diabetes**- risk of developing retinopathy increases over time
  -After 15 years, 80% of Type I Diabetics have retinopathy
Risk Factors

- **Ethnicity** - African Americans, Latinos, and Native Americans are more likely to have Diabetes

- **Pregnancy** - If you have diabetes and become pregnant, your risk for Diabetic Retinopathy increases
Diabetic Retinopathy Diagnosis

• **Eye Exam:**
  - Vision
  - Slit Lamp Exam
  - Dilated Eye Exam
• **Optical Coherence Tomography (OCT)**
  - Non-invasive scanning laser
  - Provides high resolution images of the retina
  - Evaluates for Macular Edema (swelling)
• **Fluorescein Angiography:**
  - Yellow dye injected into vein in your arm
  - Pictures then taken of retina
  - Evaluates for leakage, blood vessel closure, and neovascularization
  - Guides laser treatment
Ultrasound
- Performed when the Ophthalmologist cannot see the retina due to vitreous hemorrhage.
• **When To Schedule An Exam:**

(AAO Recommends)

- **Type I Diabetes** - Within 5 years of diagnosis, then yearly
- **Type II Diabetes** - At time of diagnosis, then yearly
- **During Pregnancy** - In first trimester
Diabetic Retinopathy

Symptoms:

• Early stages may be asymptomatic.

• As disease progresses symptoms include:
  - Floaters
  - Blurred Vision
  - Fluctuating Vision
  - Blank or dark areas in your field of vision
  - Poor night vision
  - Colors appear washed out or different
  - Vision Loss
TREATMENT OF DIABETIC RETINOPATHY
• Best Treatment is **PREVENTION**. -Control Blood Sugar.
• **Laser Surgery**
  - High energy beam of light that only has its effect where it is focused.
  - Performed in an office setting at slit lamp.
  - Focal Laser- used to treat macular edema.

A. Goal is to prevent further vision loss.

B. May get partial improvement in vision, but uncommon to recover normal vision.

C. May see spots in center of vision following treatment. Usually this fades over time, but may not completely disappear.
Panretinal Photocoagulation (PRP)
A.

B. retinopathy.

C. hemorrhage and traction retinal detachment.

D. Laser Surgery Continued . . .
- Vitrectomy Surgery
  - Treatment of vitreous hemorrhage, tractional retinal detachment, and remove scar tissue
• **Medication Injections**

- Steroid reduces swelling
- VEGF (vascular endothelial growth factor) inhibitors

A. Reduces abnormal blood vessel growth
- Injected into the vitreous
- May be given in one or a series of injections
Don’t Let Diabetes Steal Your Sight

- Be Proactive
- Develop Healthy Eating Habits
- Monitor Your Glucose Levels
- Exercise
- Schedule Regular Eye Exams
Questions?
Visit us at

DSeye.com
to learn more about your
Ocular Health