

**Diabetes – What We All Need To Know**  
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**Couse Objectives:**

- 1. Attendees will learn exactly what diabetes is, how it's diagnosed, how it is treated, and the optometric office's vital role in diabetes care**
- 2. Attendees will learn about common diabetes-related eye complications and their relationship to cardiovascular health**
- 3. Attendees will learn the key findings of the major diabetes studies and excellent resources for patient education**

**I. What is Diabetes?**

An endocrine (glandular) disease characterized by insufficient insulin production or the inability of body tissues to use insulin properly

**II. What Does Insulin Do?**

- a. It allows cells throughout the body to absorb glucose (sugar) from the bloodstream that derives primarily from carbohydrates in the foods we eat. Insulin and glucose are necessary for the brain to function
- b. Excess levels of blood sugar damage body tissues, especially blood vessels, leading to eye disease, nerve disease, kidney disease and heart disease. Eye disease is highly associated with these other complications.

**III. What Are the Different Types of Diabetes?**

- a. type 1 – usually diagnosed before age 30; require insulin to survive; the immune system destroys the cells in the pancreas responsible for making insulin; 1.5 million Americans
- b. type 2 – usually diagnosed after age 30; these patients can't use insulin properly (insulin resistance); often use medicines to increase insulin levels (including insulin injections) and medicines to make the body more sensitive to insulin; highly associated with abdominal fat (waist > 40 inches in males and > 35 inches in females), sedentary lifestyle, high saturated fat diet and family history; 20 million Americans and growing
- c. with the obesity epidemic, type 2 diabetes is becoming epidemic, including in children; 1.4 million new cases each year and growing

#### **IV. What Are the Symptoms of Diabetes?**

- a. excessive thirst, frequent urination, poor wound healing, decreased energy, fluctuating vision, clinical depression
- b. all type 1 patients have symptoms but many type 2 patients have few or no symptoms until serious complications develop

#### **V. What's The Big Deal?**

- a. diabetes is the 6<sup>th</sup> leading cause of death in the US (cardiovascular disease), and the leading cause of blindness in people < 74 years, the leading cause of kidney failure and non-traumatic amputation in all Americans
- b. 1 of every 7 health care dollars is spent on diabetes and this number may grow to 1 of every 3 dollars by 2020.

#### **VI. What Are The Eye Complications?**

- a. Diabetic Retinopathy
- b. Cataract
- c. Glaucoma and other optic nerve disease
- d. Ocular surface disease
- e. Retinal vascular occlusion
- f. Eye muscle paralysis
- g. Fluctuating refractive error (a sign of poor blood sugar control)
- h. Premature presbyopia
- i. Poor pupillary responses

#### **VII. What Does Diabetes Research Tell Us**

- a. Keep blood sugar levels as close to normal as possible to lower the risk of all complications – diet (esp. portion control), exercise & medicine
- b. Keep blood pressure levels as low as possible
- c. Get annual dilated eye exams and quarterly medical exams
- d. Early detection of diabetes related eye disease (in all of our offices) will lower the risk of blindness by as much as 95% and will save lives
- e. Walking 30 minutes each day, five days each week lowers the risk of developing type 2 diabetes by up to 60%.

#### **VIII. Hypoglycemia**

- a. Low blood sugar – can happen to any patient using insulin or drugs that increase insulin production by the pancreas (e.g.

Micronase<sup>R</sup>, Glucotrol<sup>R</sup>, Amary<sup>R</sup>, Starlix<sup>R</sup>,); very common and onset is quick

- b. Symptoms include confusion, sweating, tremor, lightheadedness, aggression; rarely, patients may lose consciousness – can cause death
- c. Treat with a fast-acting source of carbohydrate (orange juice, sugared soda, glucose tablets); EVERY optometric office should be prepared for a hypoglycemic emergency.

### **VIII. Where and How Can Patients Get Educated?**

- a. By each and every health care provider, including paraoptometric personnel; work with your doctor to help educate patients
- b. By referrals to diabetes specialists (endocrinologists, podiatrists, optometrists & ophthalmologists, mental health professionals, educators)
- c. Excellent materials include: *Diabetes For Dummies* by Dr. Alan Rubin; NIH pamphlets (e.g. *Don't Lose Sight of Diabetic Eye Disease*); *Diabetic Eye Disease: Lessons From a Diabetic Eye Doctor* by Dr. Paul Chous.
- d. Join the *American Diabetes Association* (ADA).
- e. Great Web Sites: **[AOA.org/diabetes](http://AOA.org/diabetes)**, **[dLife.com](http://dLife.com)**, **[DiabetesMonitor.com](http://DiabetesMonitor.com)**, **[Mendoza.com](http://Mendoza.com)**, **[diabetesincontrol.com](http://diabetesincontrol.com)**