



UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE  
„NICOLAE TESTEMIȚANU” DIN REPUBLICA MOLDOVA

Catedra Oftalmologie

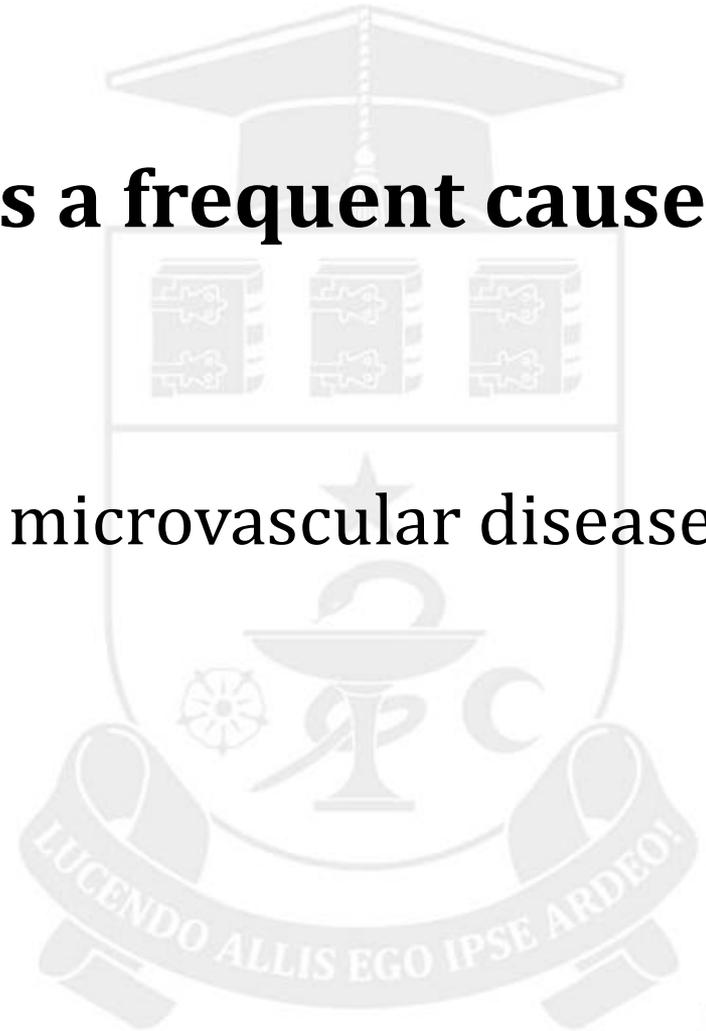
# DIABETIC RETINOPATHY

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# **Diabetic retinopathy is a frequent cause of blindness.**

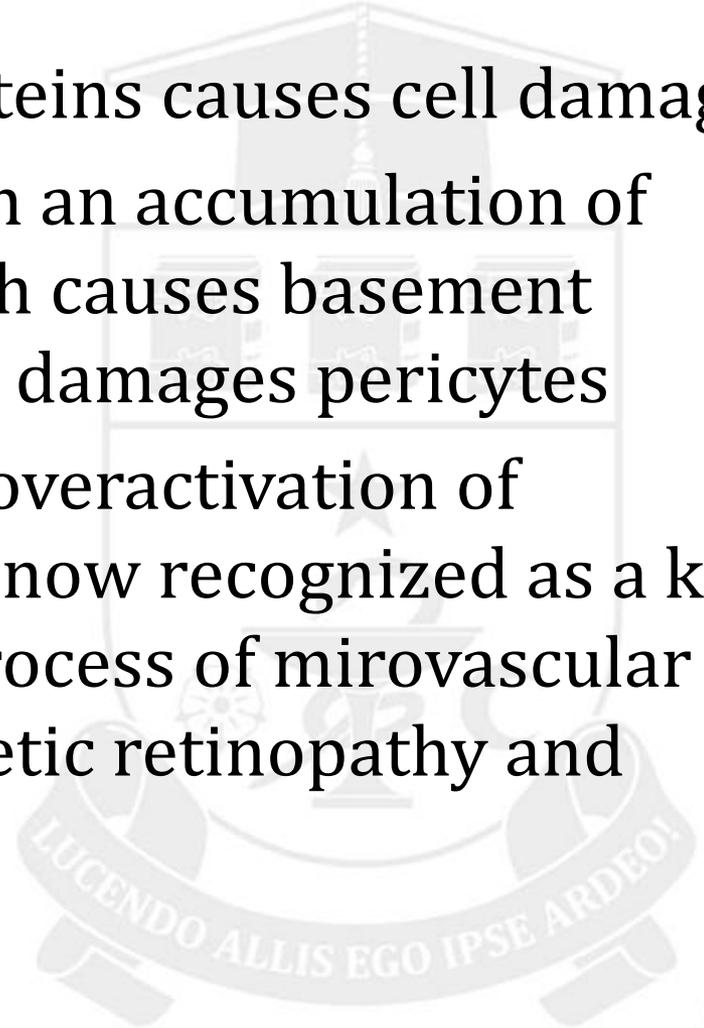
The exact cause of diabetic microvascular disease is unknown.





# Etiology

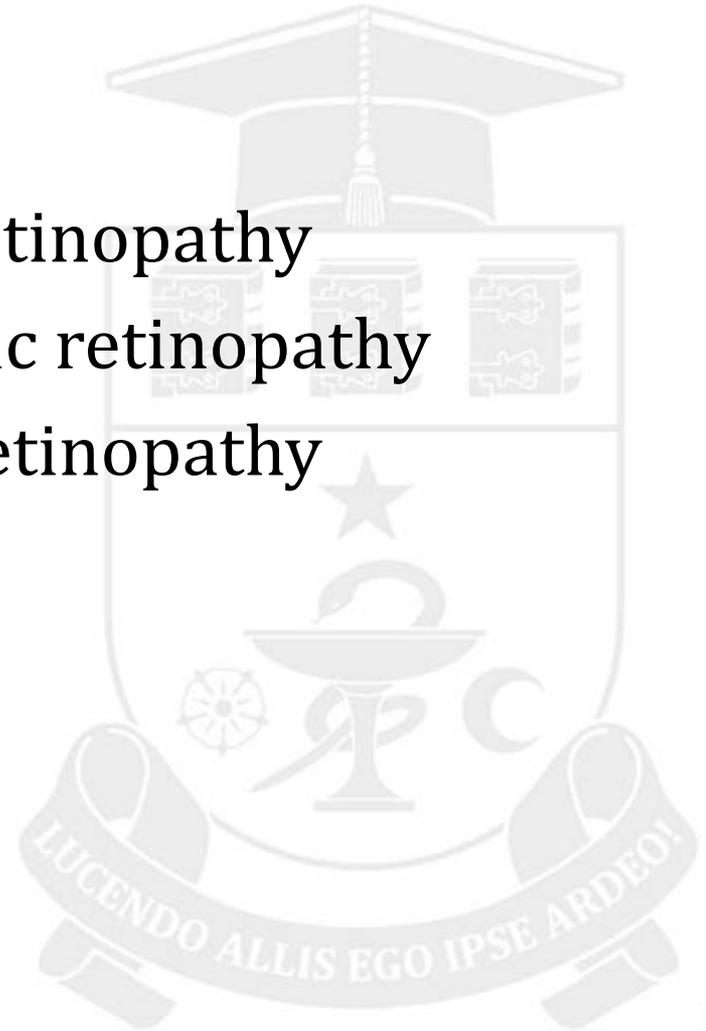
- Glicosylation of tissue proteins causes cell damage
- Aldose reductase results in an accumulation of intracellular sorbitol which causes basement membrane thickening and damages pericytes
- Hyperglycemia can cause overactivation of proteinkinase CB, PKCB is now recognized as a key factor in the underlying process of microvascular damage that leads to diabetic retinopathy and diabetic macular edema





# Diabetic retinopathy clasification

- Background diabetic retinopathy
- Preproliferative diabetic retinopathy
- Proliferative diabetic retinopathy
- Macular edema





# Risc factors in the development of diabetic retinopathy

- ✓ Long duration of diabetes
- ✓ Poor metabolic control
- ✓ Pregnancy
- ✓ Hypertension
- ✓ Renal disease
- ✓ Obesity
- ✓ Hyperlipidaemia
- ✓ Smoking
- ✓ Anaemia





# Signs of background diabetic retinopathy



- ✓ Microaneurysms usually temporal to fovea
- ✓ Intraretinal dot and blot haemorrhages
- ✓ Hard exudates



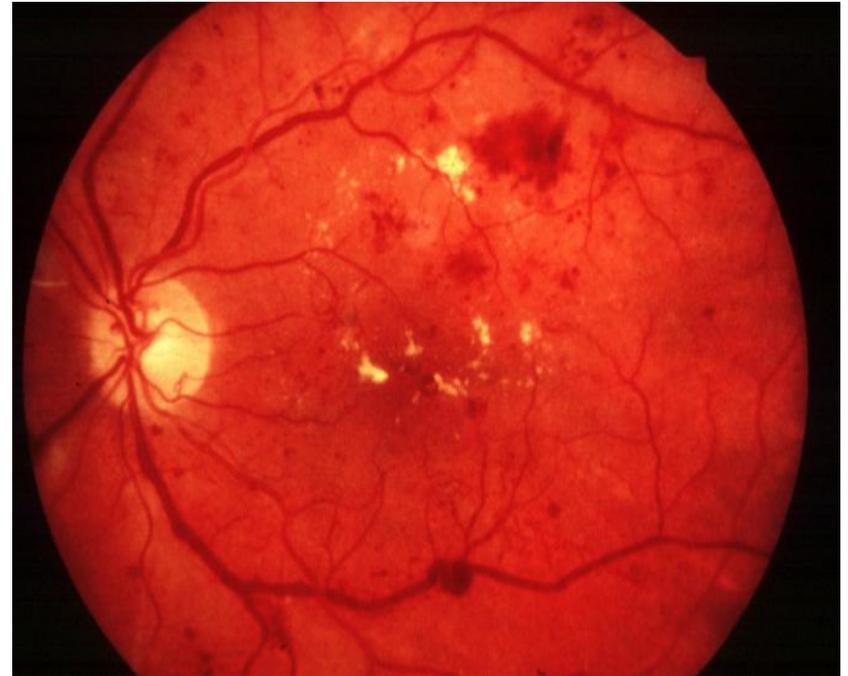


# Preproliferative diabetic retinopathy

## Signs



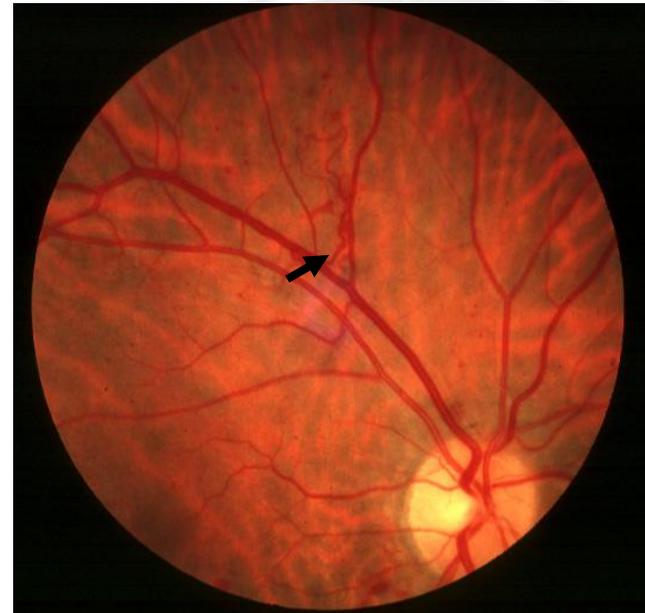
- Cotton-wool spots
- Venous irregularities



- Dark blot hemorrhages
- Intraretinal microvascular abnormalities (IRMA)



# Proliferative diabetic retinopathy

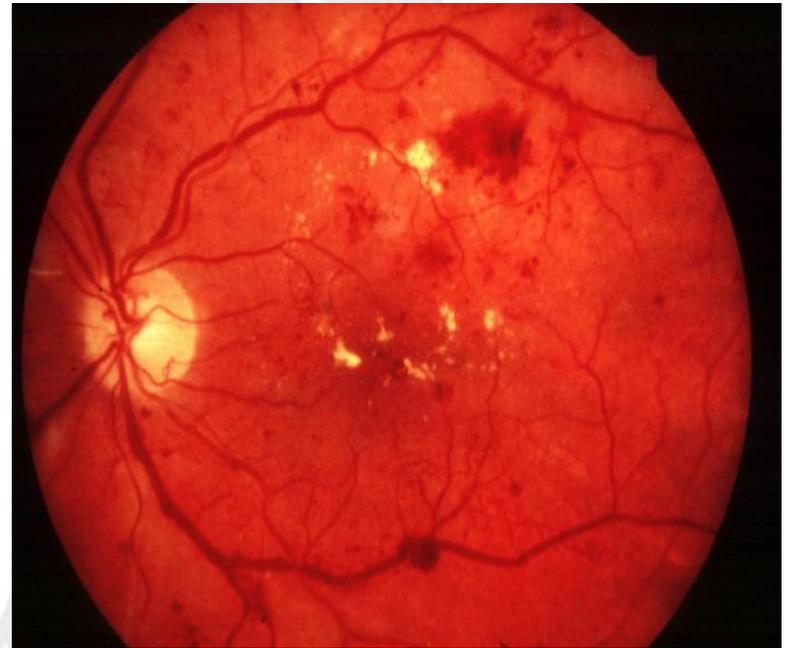


The presence of newly formed blood vessels or fibrous tissue arising from the retina or optic disc and extending along the inner surface of the retina or disc into vitreous cavity



# Diabetic macular edema

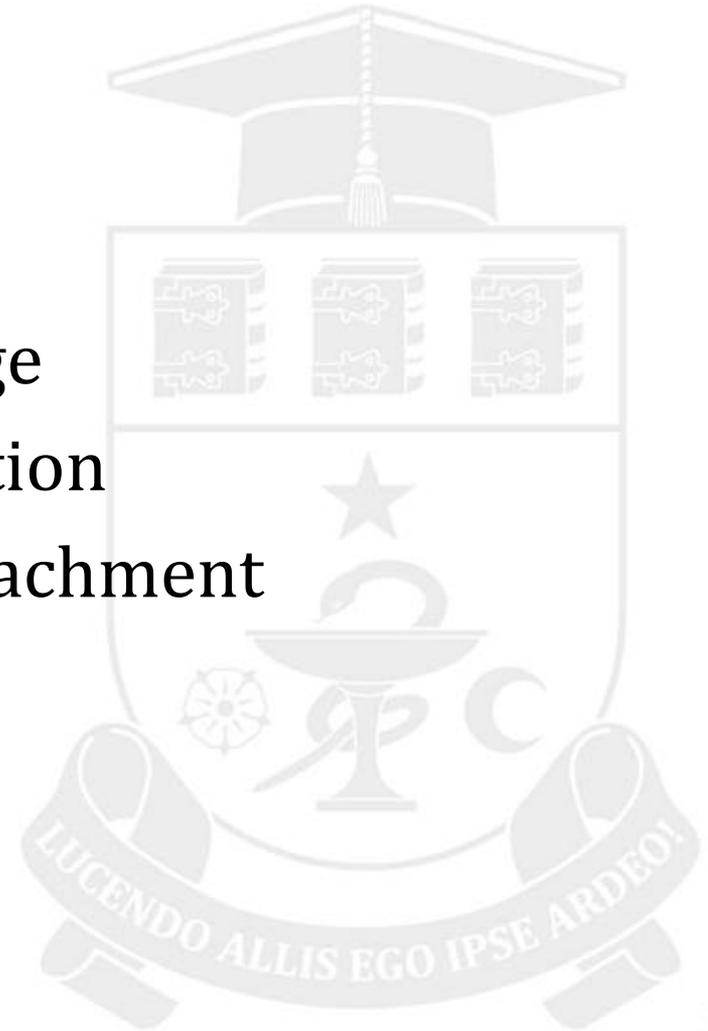
- Diabetic macular edema manifest as focal or diffuse retinal thickening with or without exudates.
- This is the main cause of the decrease of central vision in nonproliferative diabetic retinopathy





# Complications of proliferative diabetic retinopathy

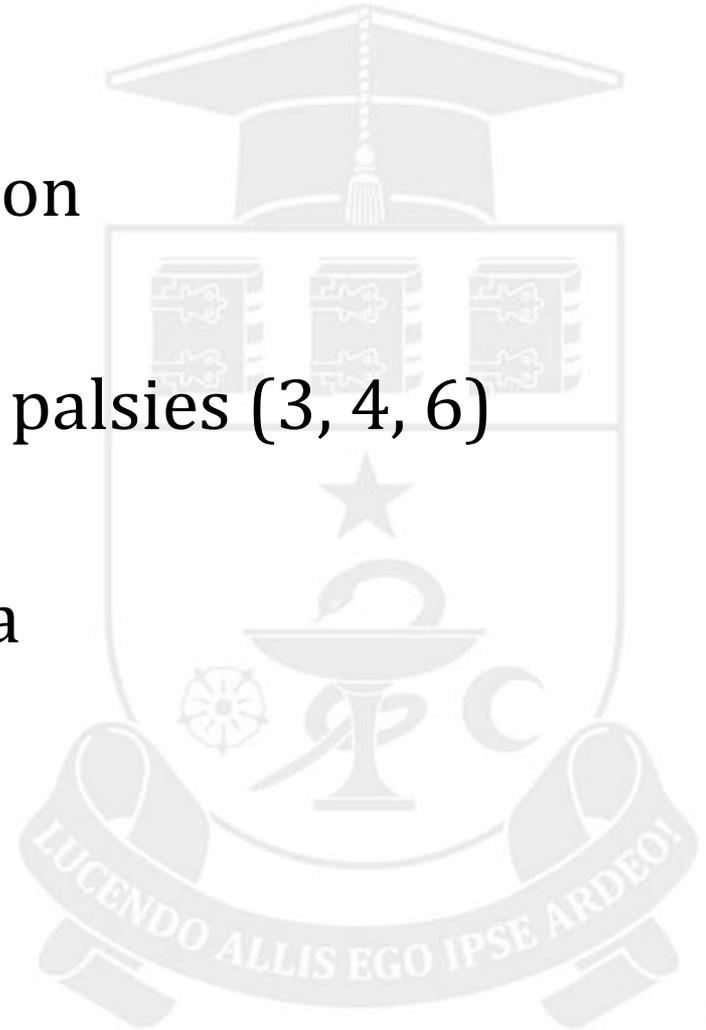
- ✓ Vitreous hemorrhage
- ✓ Preretinal hemorrhage
- ✓ Progressive proliferation
- ✓ Tractional retinal detachment





# Other complication of DR

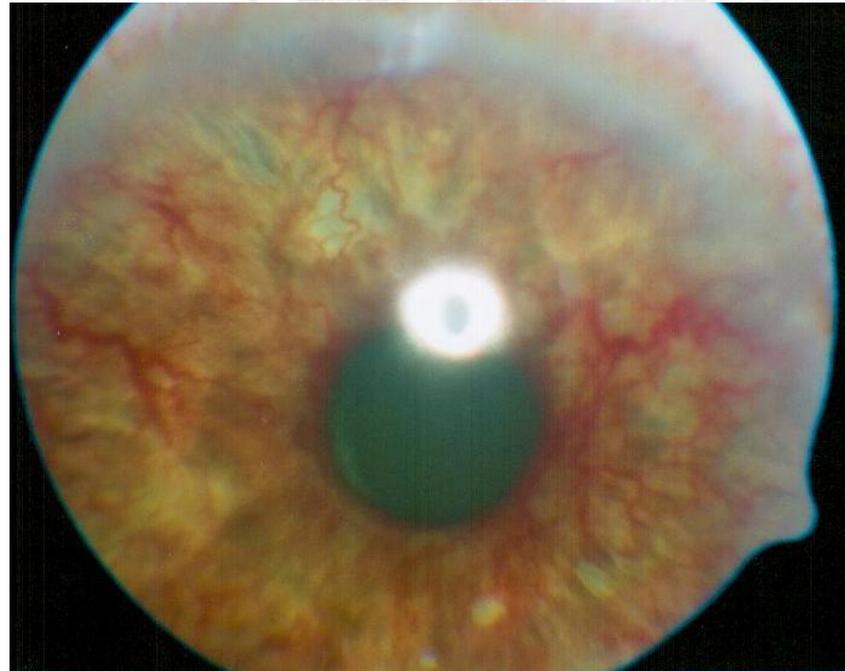
- Fluctuation in refraction
- Diabetic cataract
- Isolated cranial nerve palsies (3, 4, 6)
- Neurooptiopathy
- Neovascular glaucoma





# Neovascular glaucoma

- Anterior segment of the eye ischemia leads to neovascularisation of iris (rubeosis) and anterior chamber angle and increase intraocular pressure.





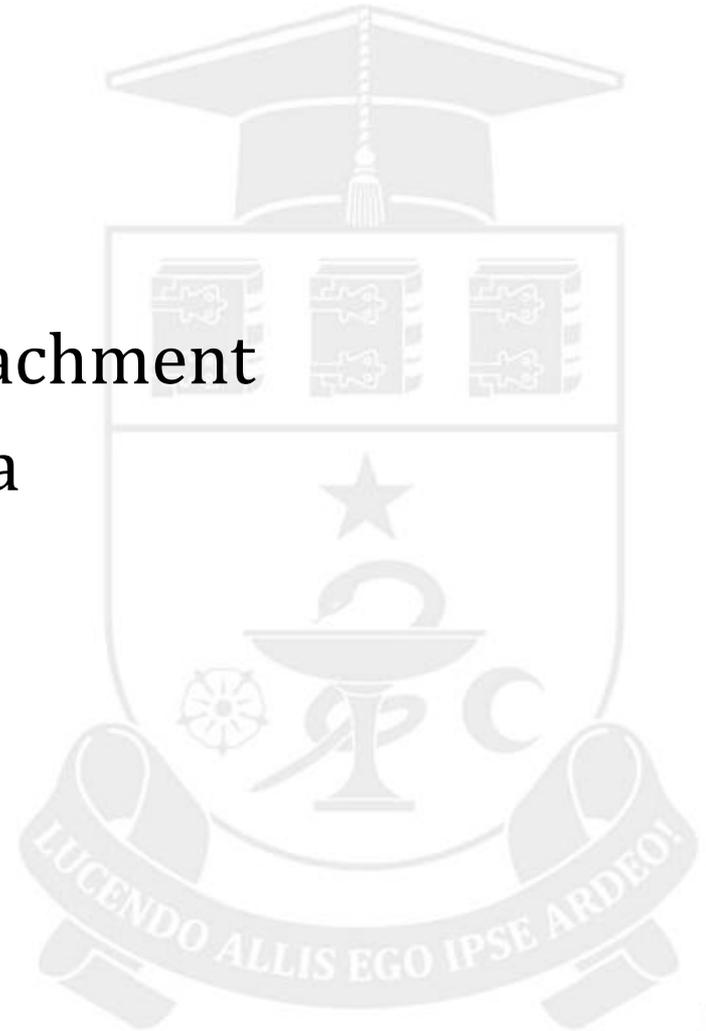
# Symptoms

- Early stages of diabetic retinopathy often don't have symptoms
- As the disease progresses, diabetic retinopathy symptoms may include:
  - Floaters - Spots, dots or cobweb-like dark strings floating in vision
  - Blurred vision;
  - Vision that changes periodically from blurry to clear;
  - Blank or dark areas in visual field of vision;
  - Poor night vision;
  - Colors appear washed out or different;
  - Vision loss.



# Causes of vision loss in proliferative diabetic retinopathy

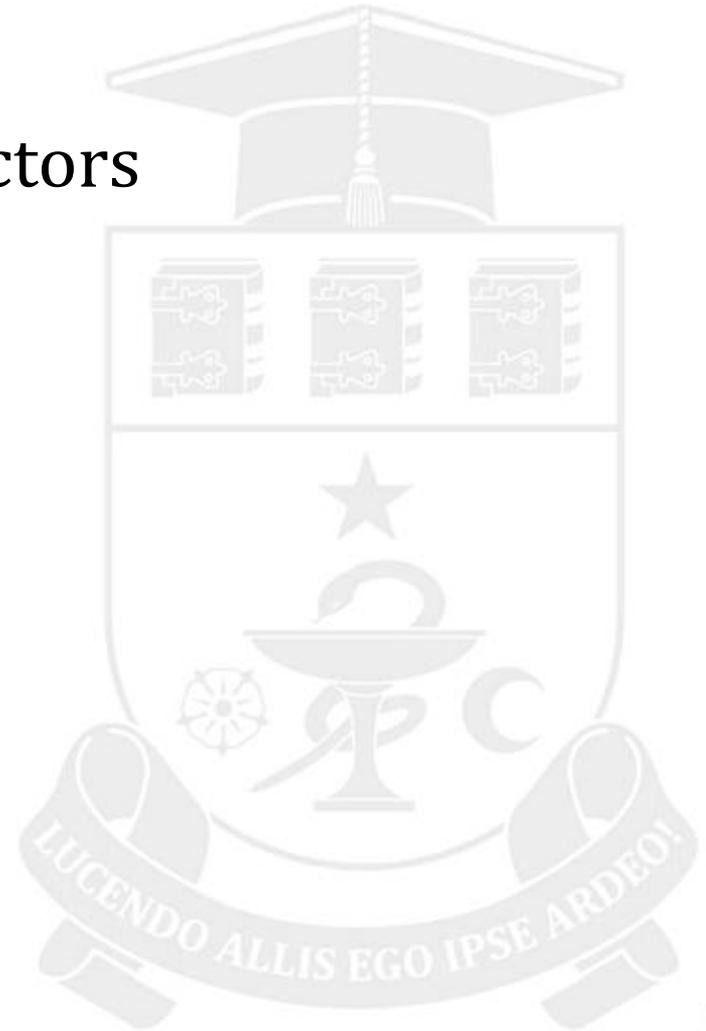
- Vitreous hemorrhage
- Tractional retinal detachment
- Neovascular glaucoma





# Advanced diabetic retinopathy is associated with:

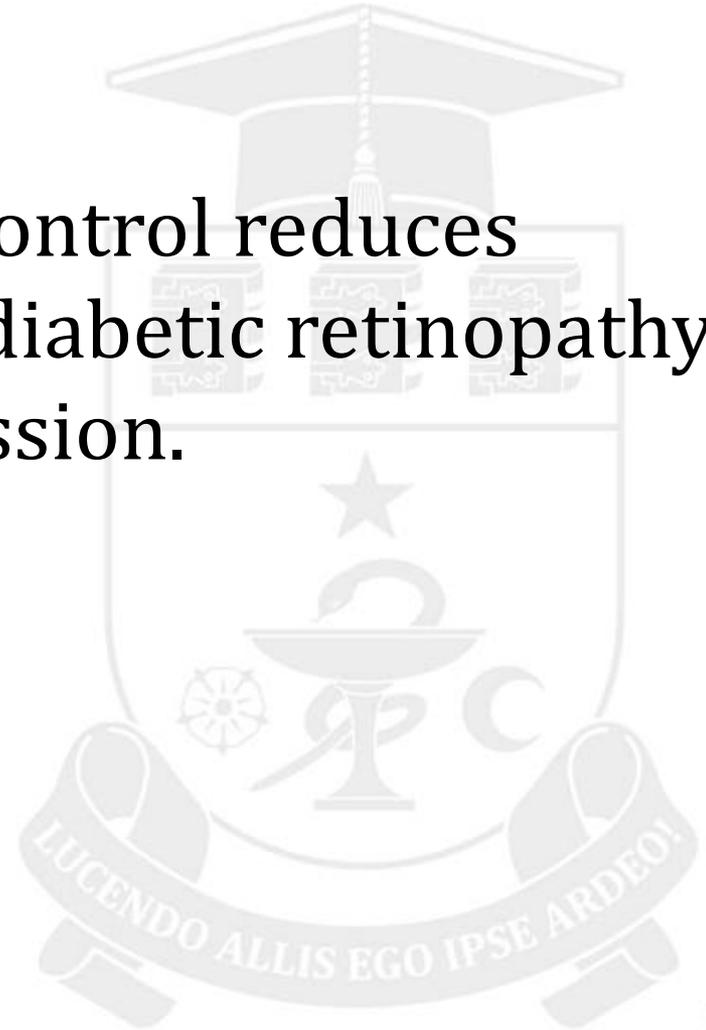
- Cardiovascular risk factors
- Heart attack
- Stroke
- Diabetic nephropathy
- Amputation
- Death





# Treatment

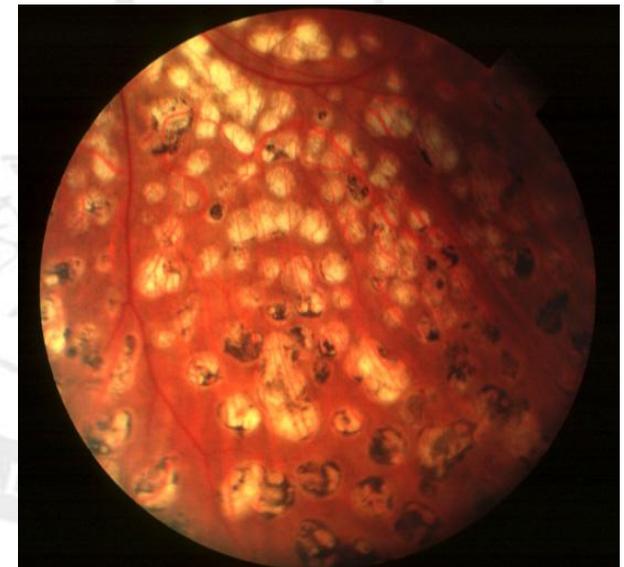
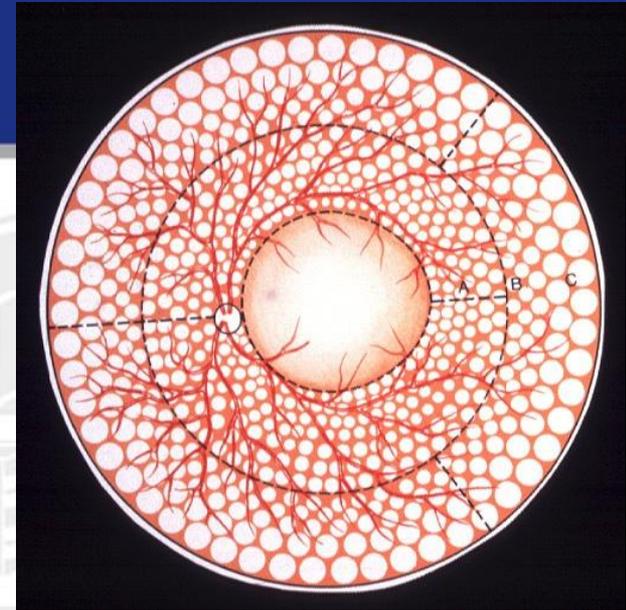
- Intensive glycemic control reduces early developing of diabetic retinopathy and reduced progression.





# Treatment

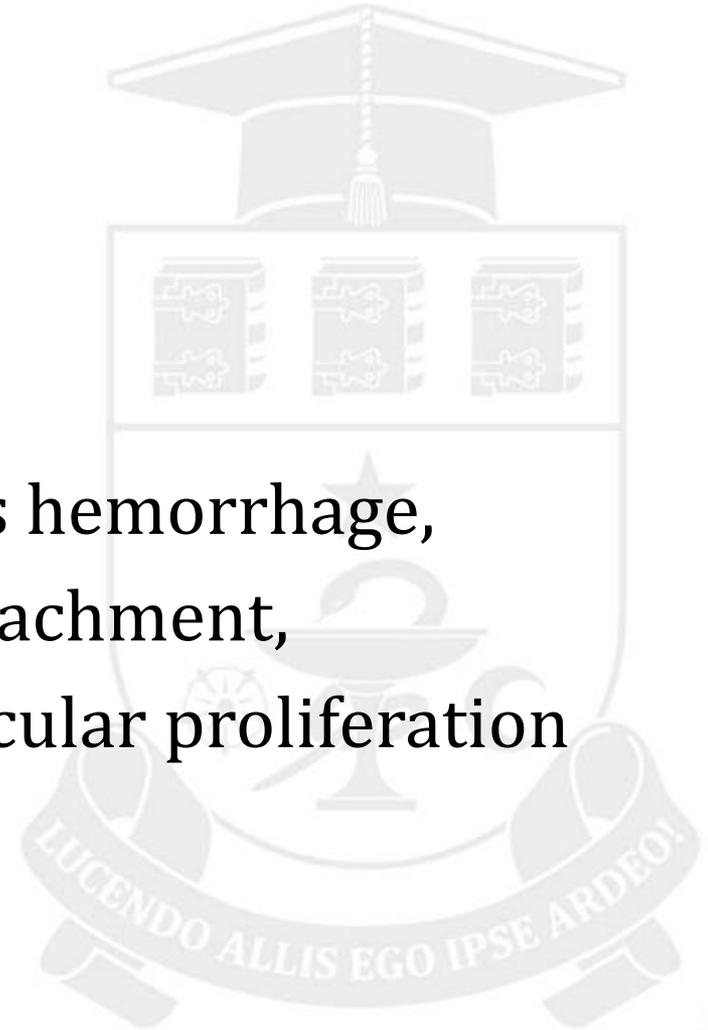
- Laser photocoagulation (focal/panretinal).
  - Indication: macular edema, preproliferative and proliferative retinopathy, rubeosis, neovascular glaucoma





# Treatment

- Vitreoretinal surgery
- Indication:
  - Noncliarung vitreous hemorrhage,
  - tractional retinal detachment,
  - progressive fibrovascular proliferation





# Eye examination – how often

- At the time of initial diagnoses
- Normal retina or rare microaneurismus – annually
- Moderate nonproliferative retinopathy - every 6 months
- Preproliferative/proliferative retinopathy, macular edema – every 2-4 months
- Pregnancy – before pregnancy, each trimester and 3-6 months postpartum

