

Complications of Diabetes

Dr Maria Barnard

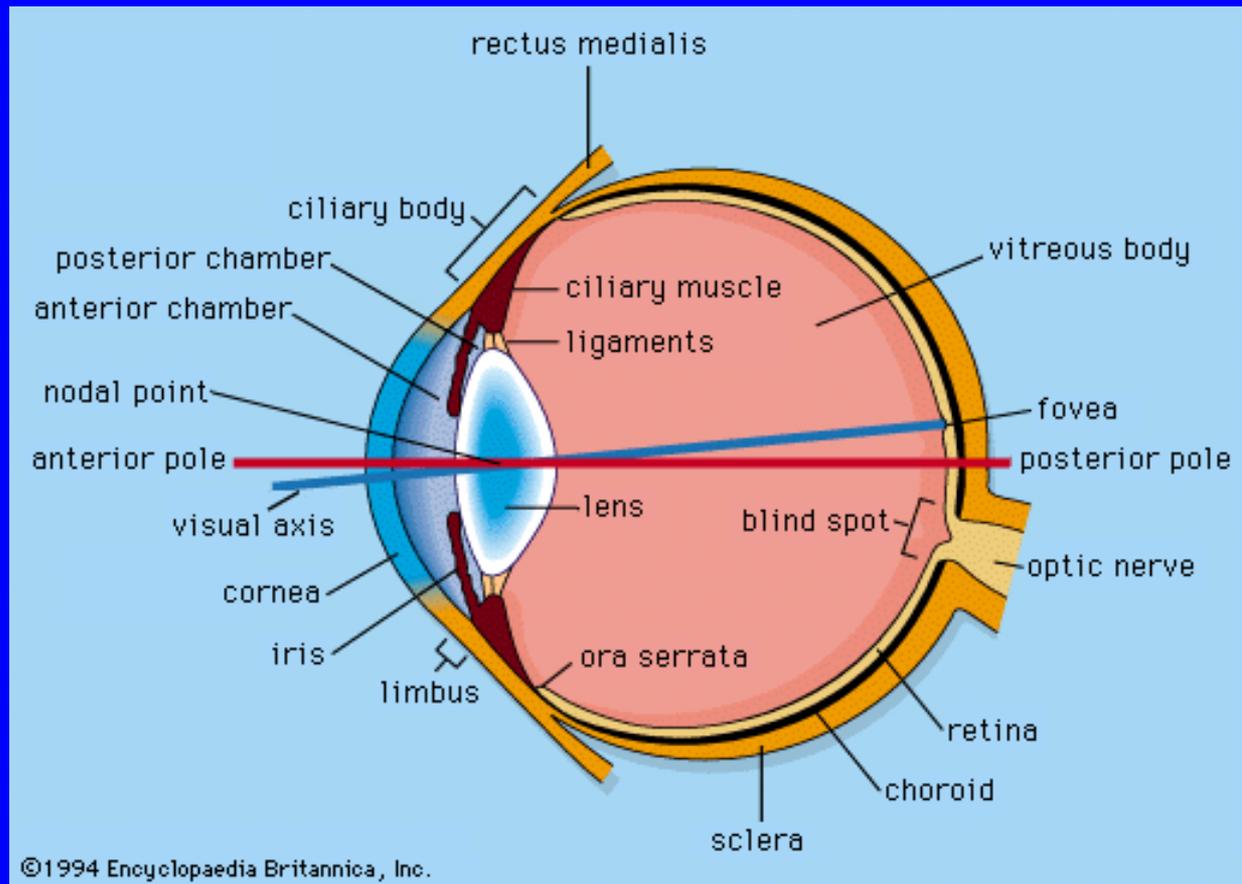
Lead Consultant in Diabetes

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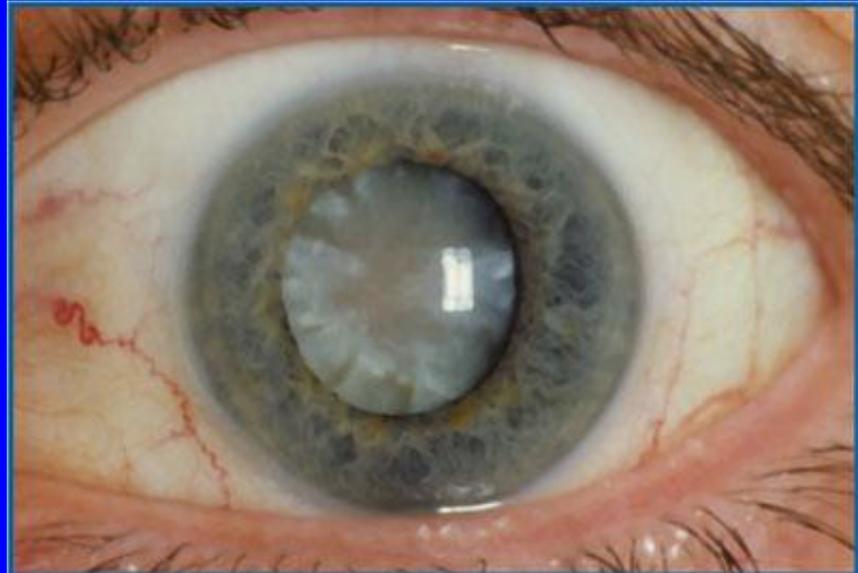
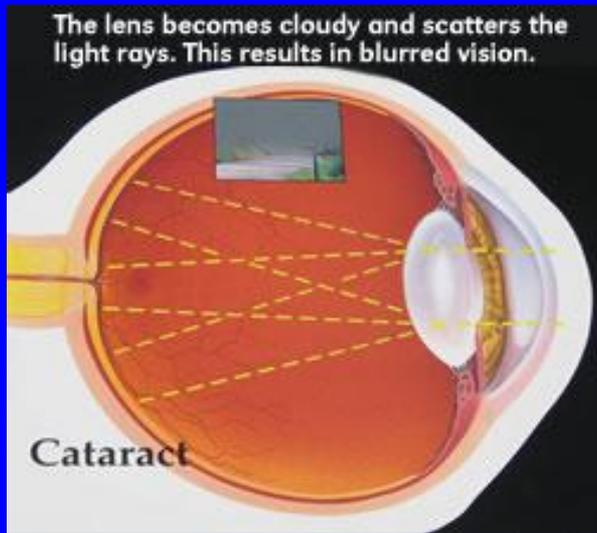
Complications

- **Eyes** (retinopathy)
- **Kidneys** (nephropathy)
- **Nerves** (neuropathy)
- **Heart / Brain** (cardiovascular disease)
- **Damage to blood vessels**

Eyes



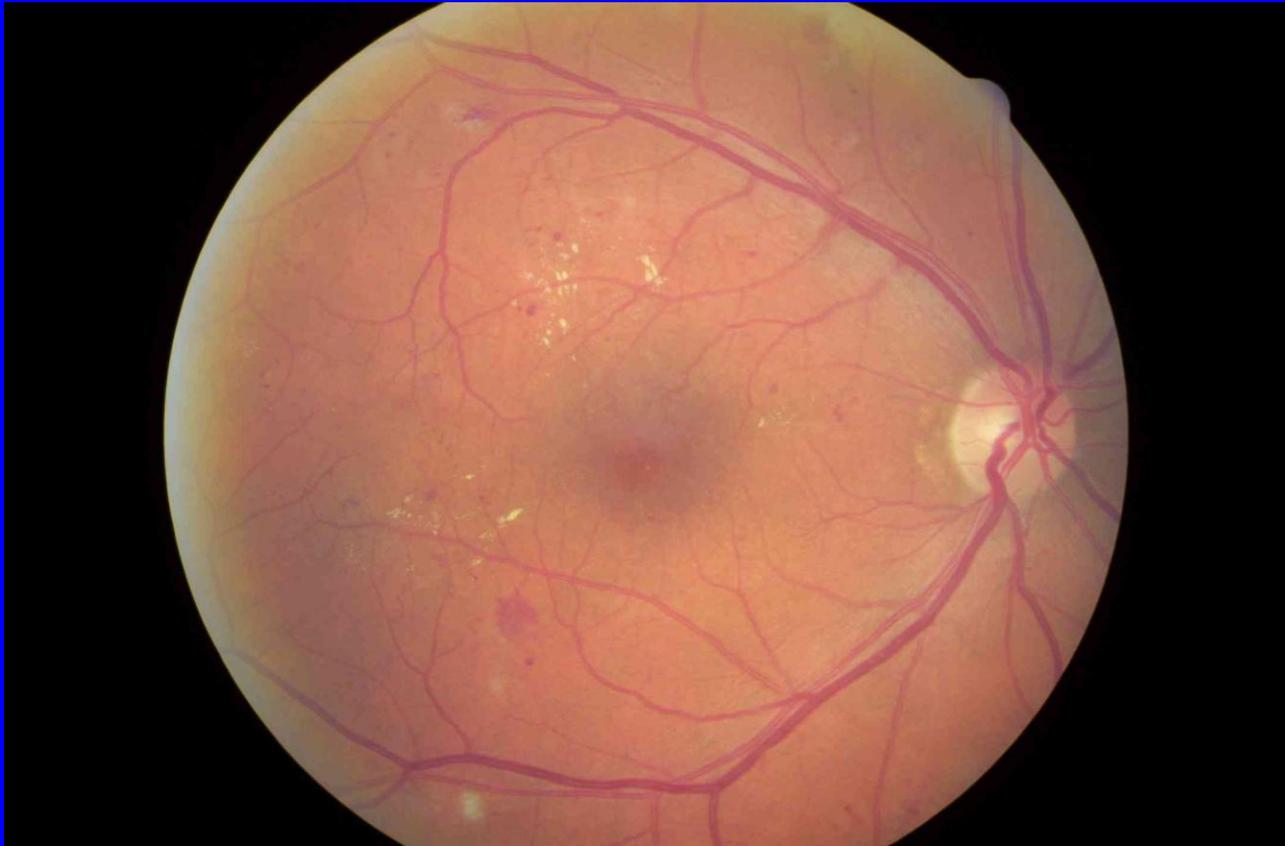
Cataracts



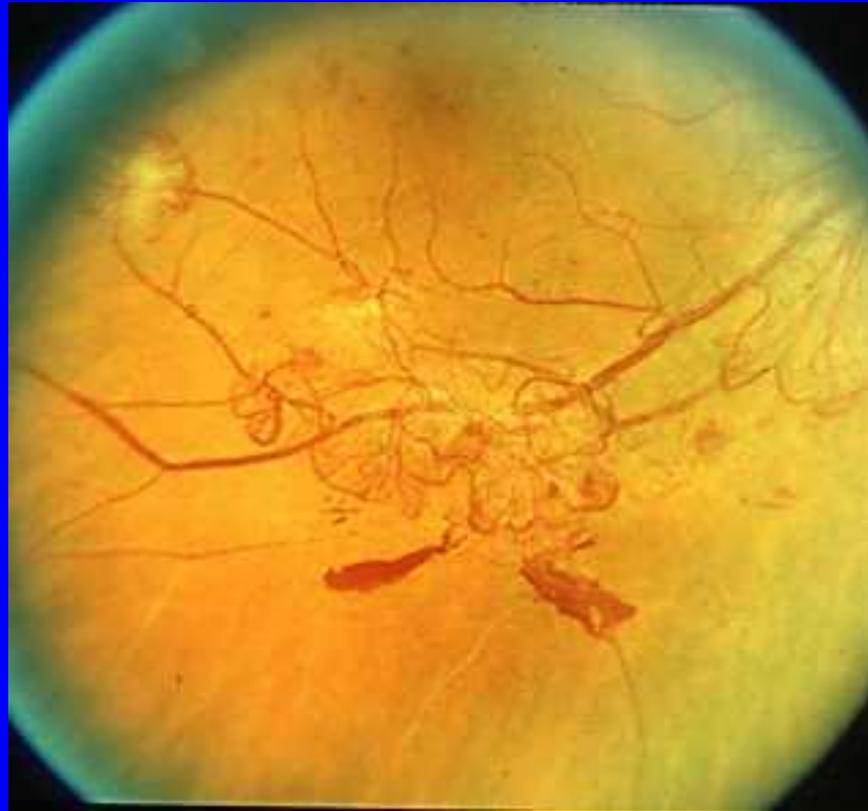
Retinopathy



Retinopathy



Retinopathy



Retinopathy – Laser Therapy



Eyes: What Can You Do?

- Attend annual eye screening

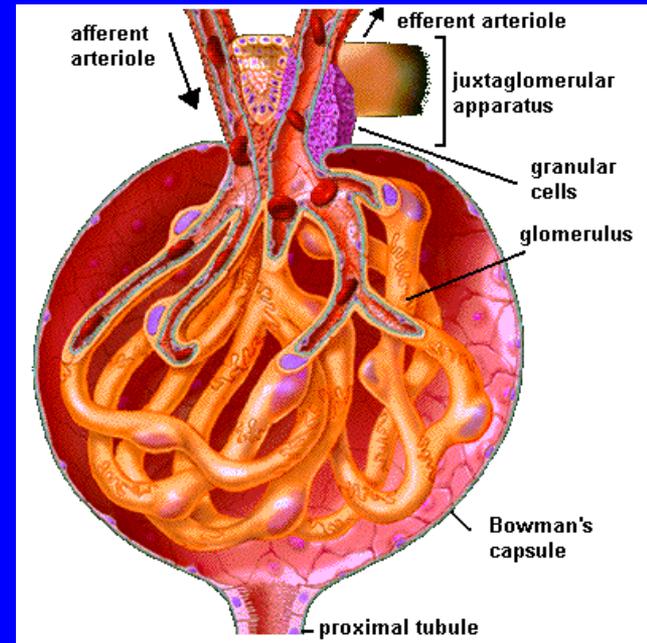
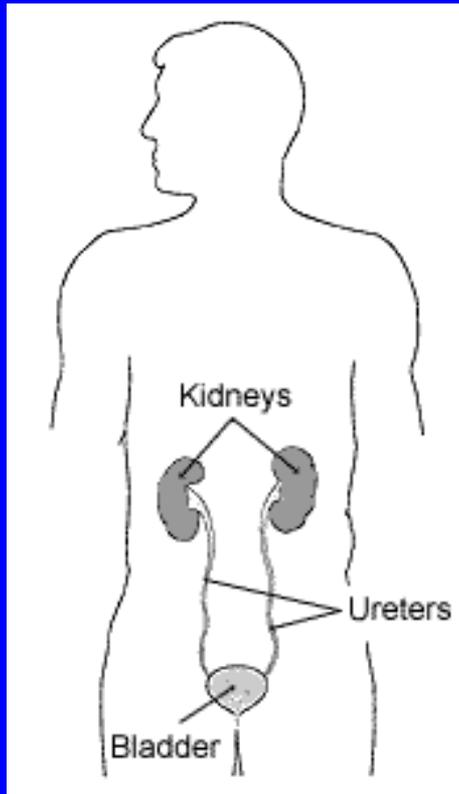
Digital Photography



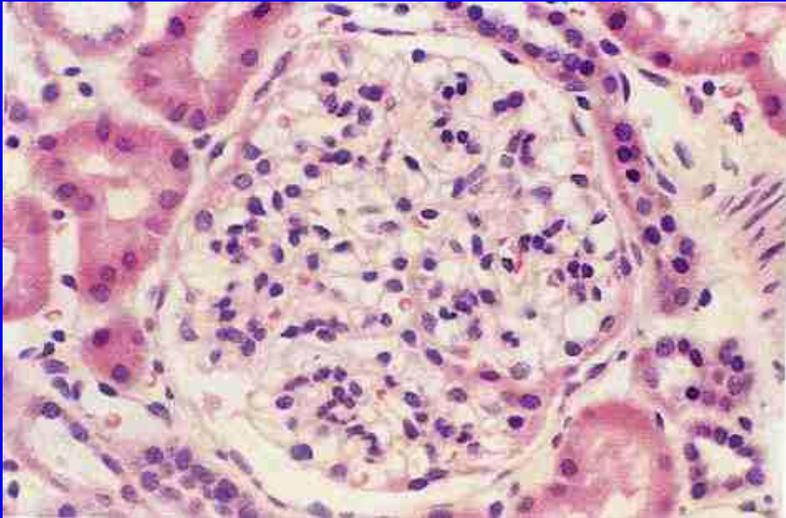
Eyes: What Can You Do?

- Attend annual eye screening
- Maintain good blood glucose control
- Intensive insulin therapy reduces risk of developing retinopathy by 75 %
 - HbA1c ~ 7 %
- Maintain good blood pressure
 - BP < 130 / 80
- ?Maintain good cholesterol levels

Kidneys

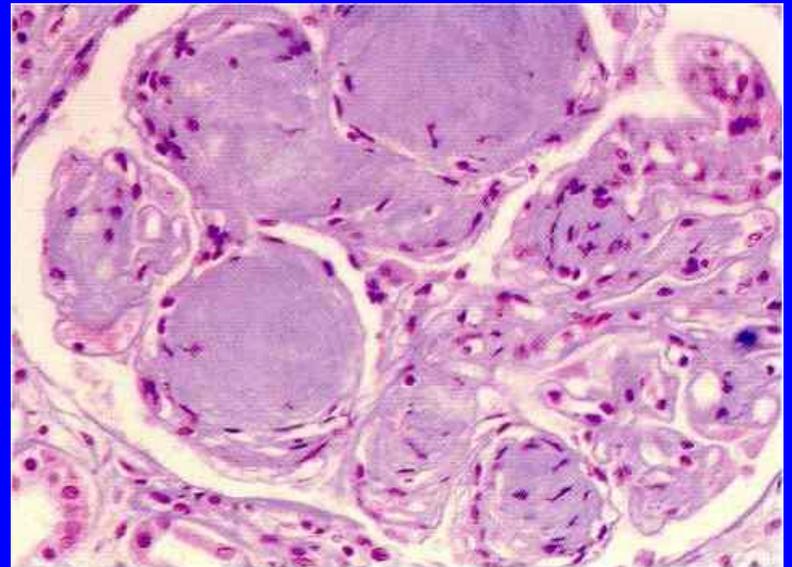


Nephropathy



Kidney glomerulus

Scarring in diabetes



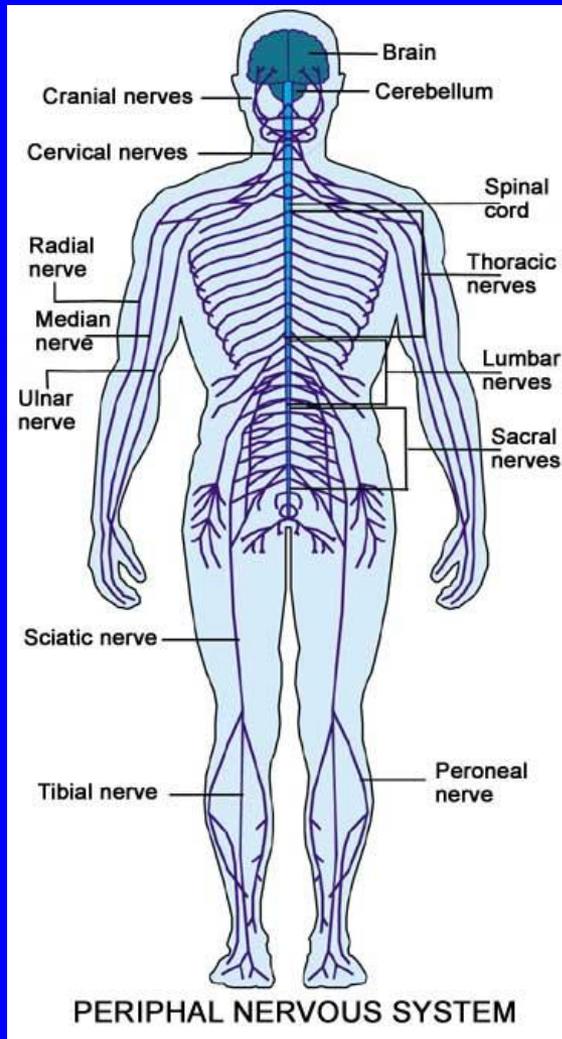
Kidneys: What Can You Do?

- Have annual urine screening test
 - Measure Albumin-to-Creatinine Ratio (ACR)
 - $ACR \leq 2.5$ men; $ACR \leq 3.5$ women
- Maintain good blood glucose control
- Intensive insulin therapy reduces risk of developing nephropathy by 54 %
 - $HbA1c \sim 7\%$

Kidneys: What Can You Do?

- Maintain good blood pressure
 - BP < 130 / 80
 - BP < 125 / 75 if kidney problems
- Maintain good cholesterol levels
- Consider low dose aspirin therapy

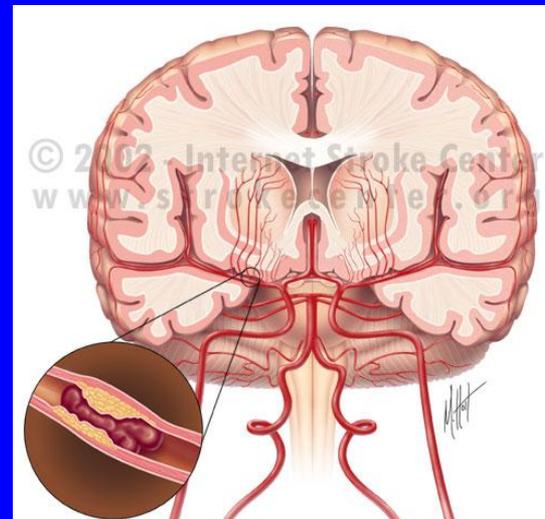
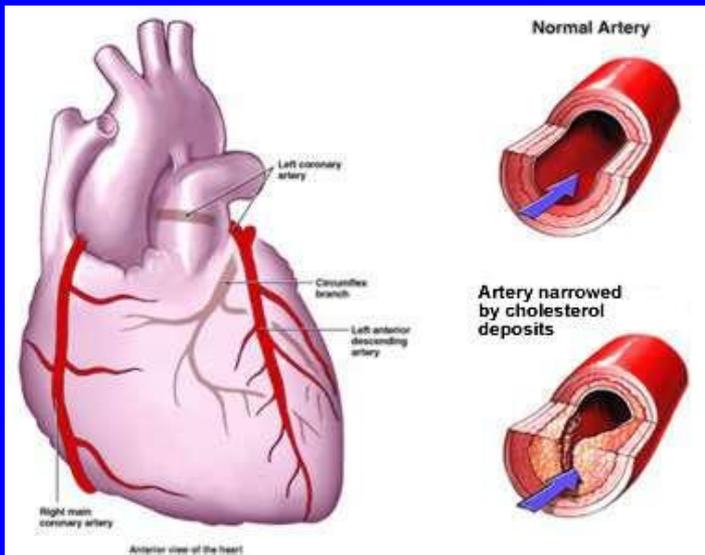
Neuropathy



Nerves: What Can You Do?

- Have annual foot review
- Look after your feet!
- Maintain good blood glucose control
- Intensive insulin therapy reduces risk of developing neuropathy by 60 %
- HbA1c ~ 7 %
- Maintain good blood pressure and cholesterol levels

Heart Attack / Stroke



Heart & Brain: What Can You Do?

- Have annual clinical review
- Maintain good blood pressure
 - BP < 130 / 80
- Maintain good blood glucose control
- Intensive insulin therapy reduces risk of developing CV disease by 41 %
 - HbA1c ~ 7 %
- Maintain good cholesterol levels
- Consider low dose aspirin therapy

Heart & Brain: What Can You Do?

- Maintain good cholesterol levels
 - Total Cholesterol < 4 mmol/l
 - LDL cholesterol < 2 mmol/l
 - HDL: Men > 1.1 mmol/l; Women > 1.3 mmol/l
 - Triglycerides < 2.3 mmol/l
- HPS - Heart Protection Study:
Simvastatin reduces CV disease by 25 %
- CARDS - Collaborative Atorvastatin Diabetes Study:
Atorvastatin reduces CV disease by 37 %

Heart & Brain: What Can You Do?

- Patients with diabetes aged > 40 years with a total cholesterol of 3.5 mmol/l or above should start statin therapy
(e.g. Simvastatin, Atorvastatin)
- Patients with diabetes and established cardiovascular disease should be on statin therapy

Heart & Brain: What Can You Do?

- Consider low dose aspirin therapy
 - Aspirin 75 mg once a day
- Aspirin reduces risk of heart attack by 60 %
- Patients with diabetes aged > 40 years should be on aspirin
- Patients with diabetes and established cardiovascular disease should be on aspirin

Know Your Numbers

- HbA1c ~ 7%
- Blood pressure < 130 / 80
- Cholesterol < 4 mmol/l
- LDL cholesterol < 2 mmol/l

Diabetes management:

www.whittington.nhs.uk/diabetes