



Live Healthy! Protect your vision!

DIABETES MELLITUS AND VISION



Normal vision

Diabetes Mellitus is one of the major causes of blindness in the developed countries, according to the American Academy of Ophthalmology. More than 90.000.000 people suffer from diabetic retinopathy. The high blood glucose levels affect the wall of small blood vessels including the retinal vessels. It weakens the walls and as a result makes them more vulnerable to irreversible damages. The leakage of fluids from the damaged retinal vessels can cause haemorrhages, edemas and finally decrease in vision.

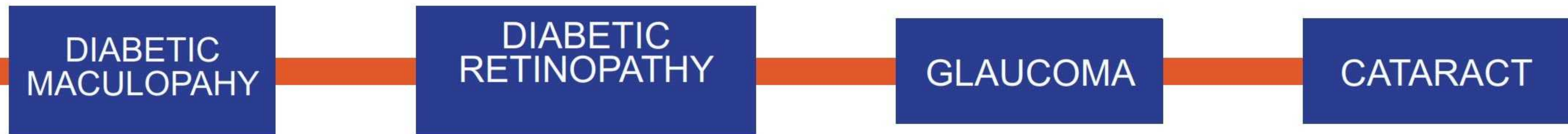


Advanced level of Diabetes Mellitus

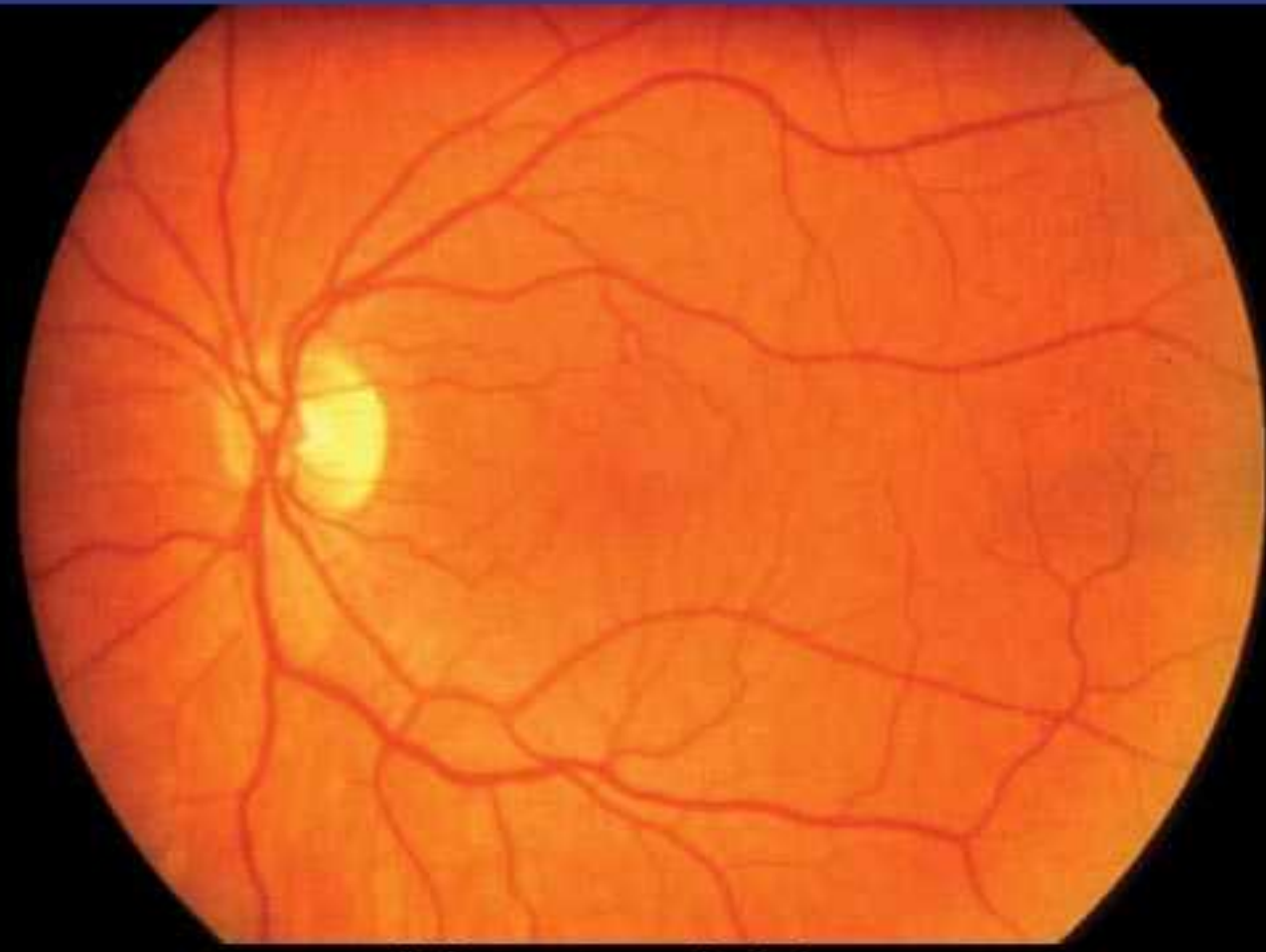
How can Diabetes Mellitus affect the eye?

Diabetes Mellitus can cause problems to the eye, which can lead to significant decrease in vision, which is irreversible.

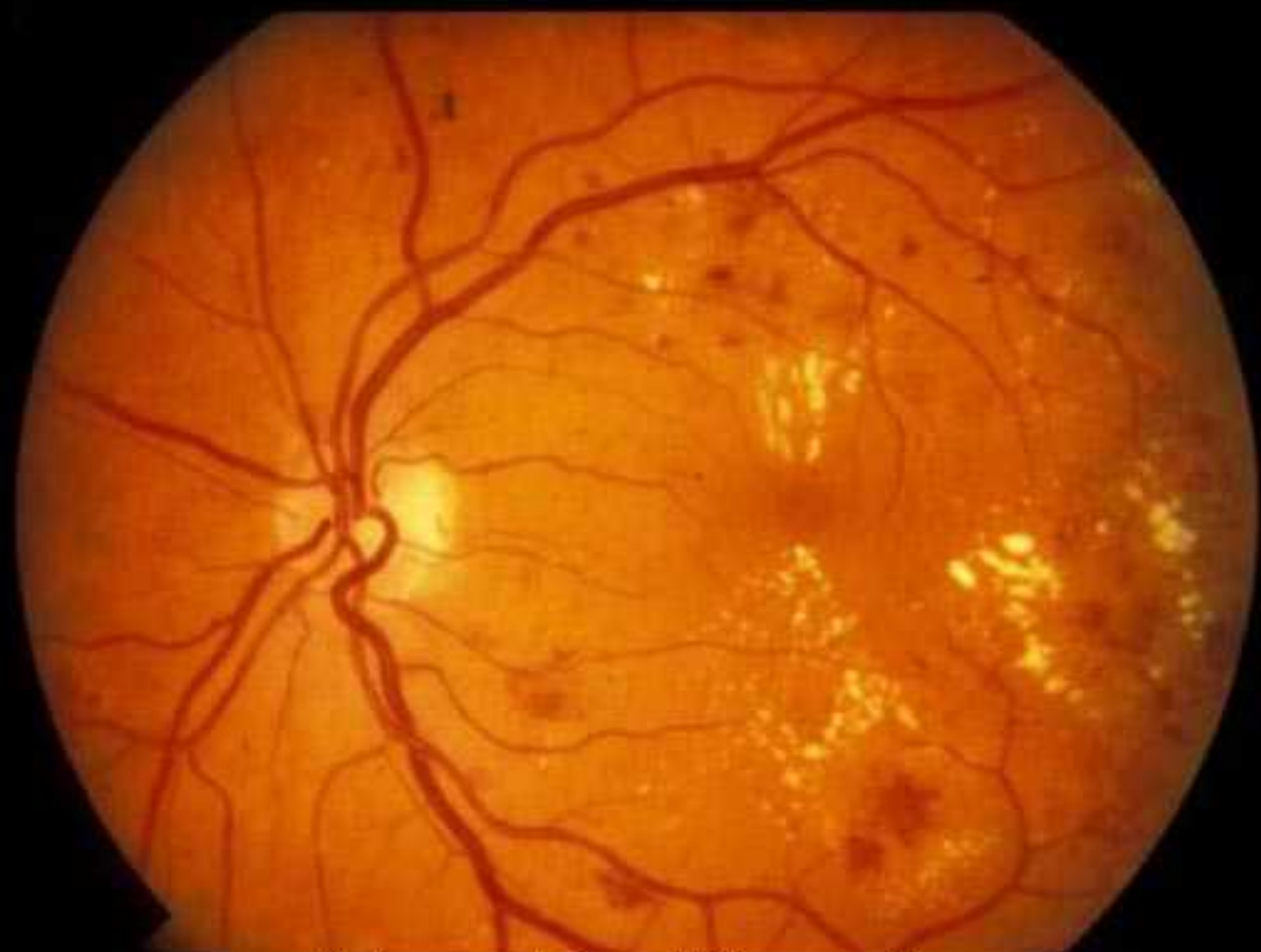
The most common are:



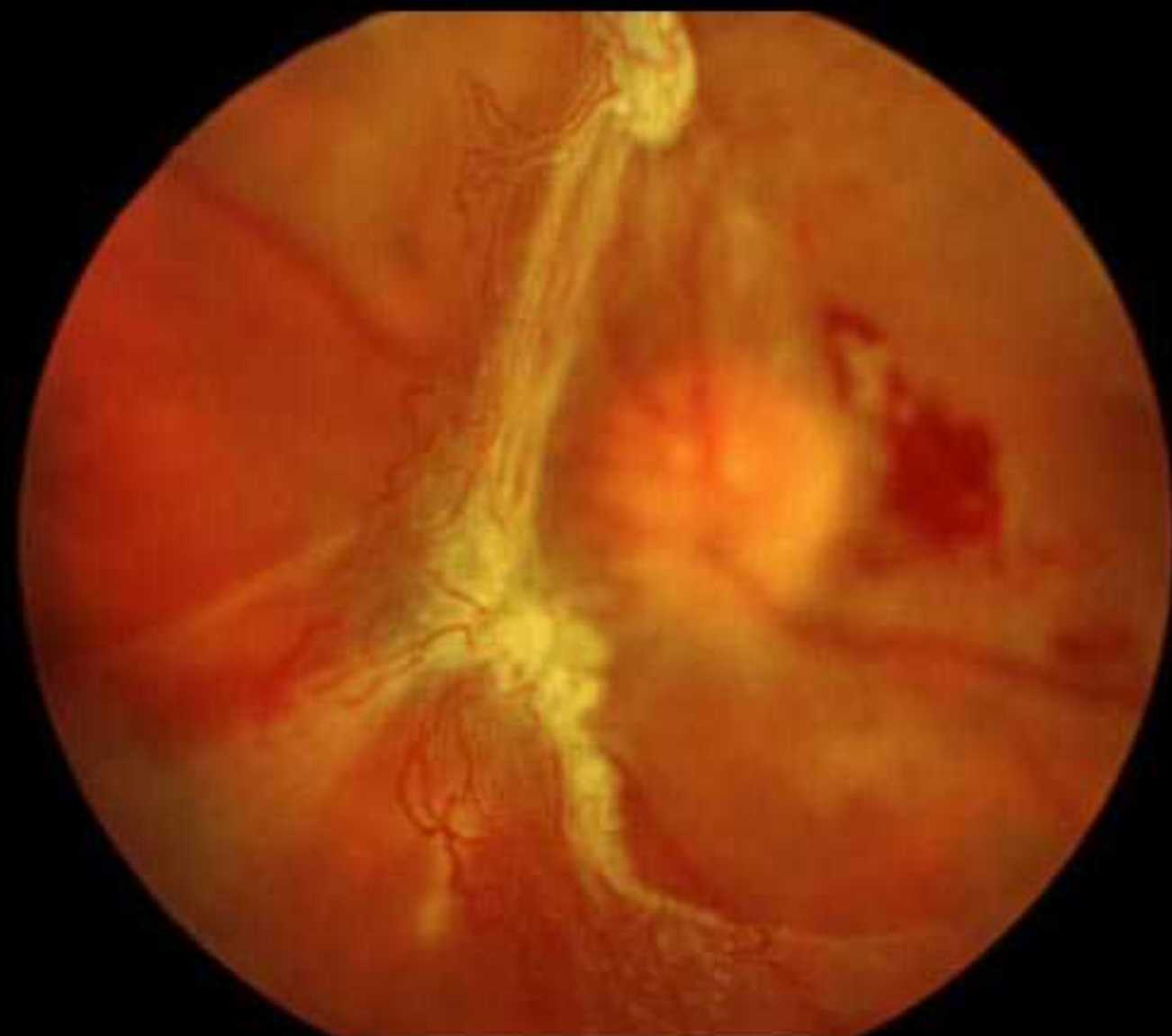
WHAT IS DIABETIC RETINOPATHY



Normal Eye



Non-Proliferative



Proliferative

Diabetic Retinopathy is the most common disease of the eye and is the major cause of blindness in people of 20 – 74 years of age.

It is caused by the changes in the retinal blood vessels. Retina is a thin layer of tissue that lines the back of the eye. Diabetes Mellitus can cause two types of Retinopathy:

1. Non - Proliferative Retinopathy:

The walls of the small blood vessels or the retina (capillary vessels) are damaged (aneurisms) and either can leak or bleed. The leakages, which are centrally to the macula, can cause edema which decreases vision.

2. Proliferative Retinopathy:

The insufficient blood supply to the retina (ischemia), stimulates the development of new blood vessels. This development happens in an abnormal way, sometimes causing bleeding or scars. Extensive scar formation can lead to retinal detachment. The loss of vision in proliferative retinopathy is worse compared to non-proliferative retinopathy.

WHO IS IN DANGER FOR DIABETIC RETINOPATHY

TYPE 1 TYPE 2

*Check your HbA1C levels
at the laboratory !!!*

- Each person with diabetes mellitus, TYPE 1 and TYPE 2 are in danger. For this reason a complete ophthalmological examination with **MYDRIASIS** (with eye drops that dilate the pupil). It is mandatory for all diabetic people **AT LEAST ONCE A YEAR.**
- The longer a patient has diabetes, the more likely is to have diabetic retinopathy.
- If you have diabetic changes in the eye, your doctor should start a treatment to stop their progress.

**PREVENTIVE
OPHTHALMOLOGICAL
EXAMINATION**

AS SOON AS you are diagnosed with diabetes mellitus, **YOU SHOULD IMMEDIATELY** go to your ophthalmologist for an examination with Mydriasis (Special eye drops which dilate the pupil. This is the only way that your ophthalmologist can diagnose changes at the periphery of the retina)

WHAT ARE THE SYMPTOMS OF DIABETIC RETINOPATHY

- Do not wait for symptoms before you visit your ophthalmologist. Unfortunately, in the early stages of the disease there are neither symptoms nor pain.
- There can be abrupt reduction in the vision when the macula (the part of the retina which is responsible for the central vision) is distorted due to edema. Edema is difficult to manage and can cause irreversible damages when not treated early enough.
- In addition, the ophthalmological examination can give important information to the diabetologist. For example, the occurrence of early lesions in the vessels, signs of systemic hypertension and atherosclerosis and finally the rate of aggravation of the disease.

TYPE 1 TYPE 2

As soon as diabetes mellitus is diagnosed, IMMEDIATE examination of the eye with mydriasis is indicated

**Yearly Examination
of the eye with
MYDRIASIS**

HOW IS DIABETIC RETINOPATHY DIAGNOSED

At the beginning, a complete ophthalmological examination is required which include:

measurement of
intraocular pressure



Measurement of
Visual Acuity

$\frac{20}{200}$	A	$\frac{200 \text{ FT}}{61 \text{ M}}$	1
$\frac{20}{100}$	M E	$\frac{100 \text{ FT}}{30.5 \text{ M}}$	2
$\frac{20}{70}$	R I C	$\frac{70 \text{ FT}}{21.3 \text{ M}}$	3
$\frac{20}{60}$	A I S T	$\frac{50 \text{ FT}}{15.2 \text{ M}}$	4
$\frac{20}{40}$	H E O N L	$\frac{40 \text{ FT}}{12.2 \text{ M}}$	5
$\frac{20}{30}$	Y E C O N O	$\frac{30 \text{ FT}}{9.14 \text{ M}}$	6
$\frac{20}{25}$	M Y T H A T I	$\frac{25 \text{ FT}}{7.62 \text{ M}}$	7
$\frac{20}{20}$	N E E D T O G I	$\frac{20 \text{ FT}}{6.10 \text{ M}}$	8
$\frac{20}{15}$	V E M Y A T T E N	$\frac{15 \text{ FT}}{4.57 \text{ M}}$	9
$\frac{20}{13}$	T I O N T H I N G S	$\frac{13 \text{ FT}}{3.96 \text{ M}}$	10
$\frac{20}{10}$	H A V E C H A N G E D	$\frac{10 \text{ FT}}{3.05 \text{ M}}$	11

Fundoscopy with
eye drops



SPECIAL DIAGNOSTIC EXAMINATIONS

Depending on the result of the Ophthalmological examination, the doctor decides if further additional imaging tests are required.

Optical Coherence Tomography - OCT

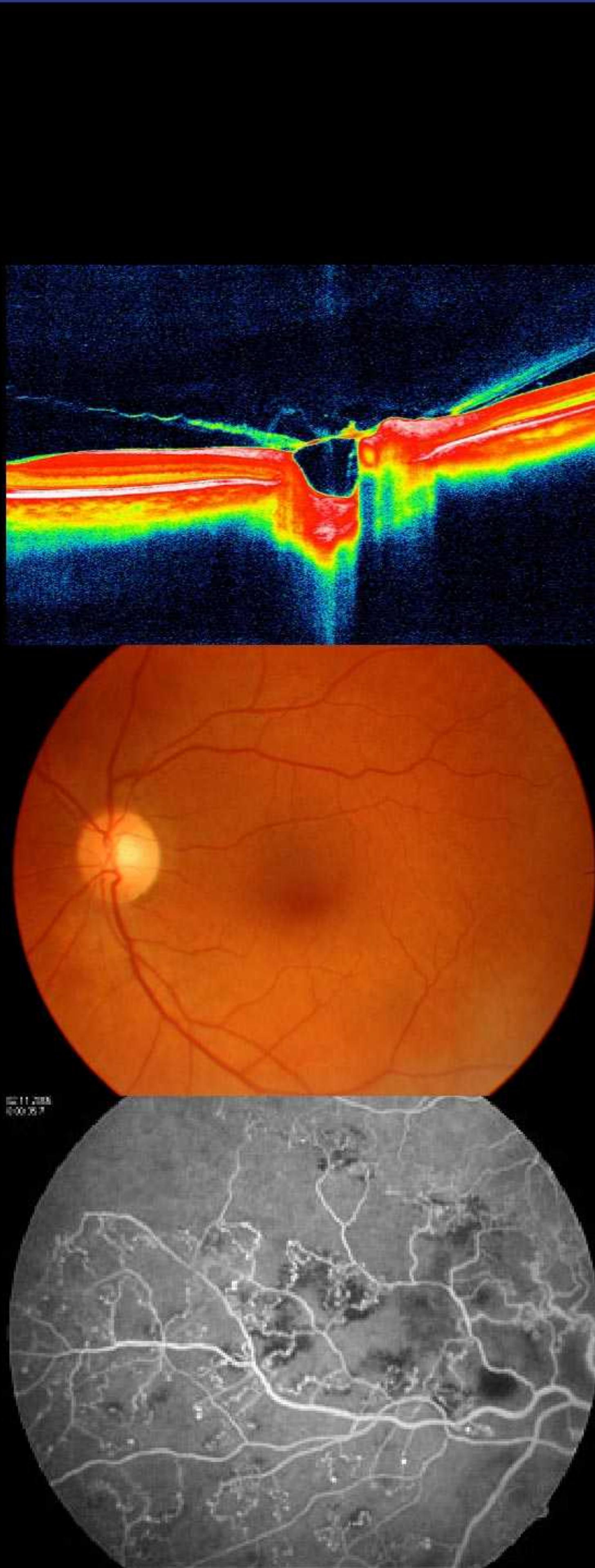
A fast and painless, non-invasive and diagnostic imaging examination. It allows very high resolution sections to be taken in all parts of the eye for early diagnosis of macular edema and other lesions.

Fundus Photography (when needed)

It involves the capturing of photograph of the back of the eye including the retina optic nerve, macula and eye vessels.

Fluoroangiography (when needed)

The procedure is done by intravenous administration of specific dye (like fluorescent dye) called fluorescein, which highlights the blood vessels in the back of the eye and at the same time it captures pictures with a special camera which emit light of a certain wavelength.

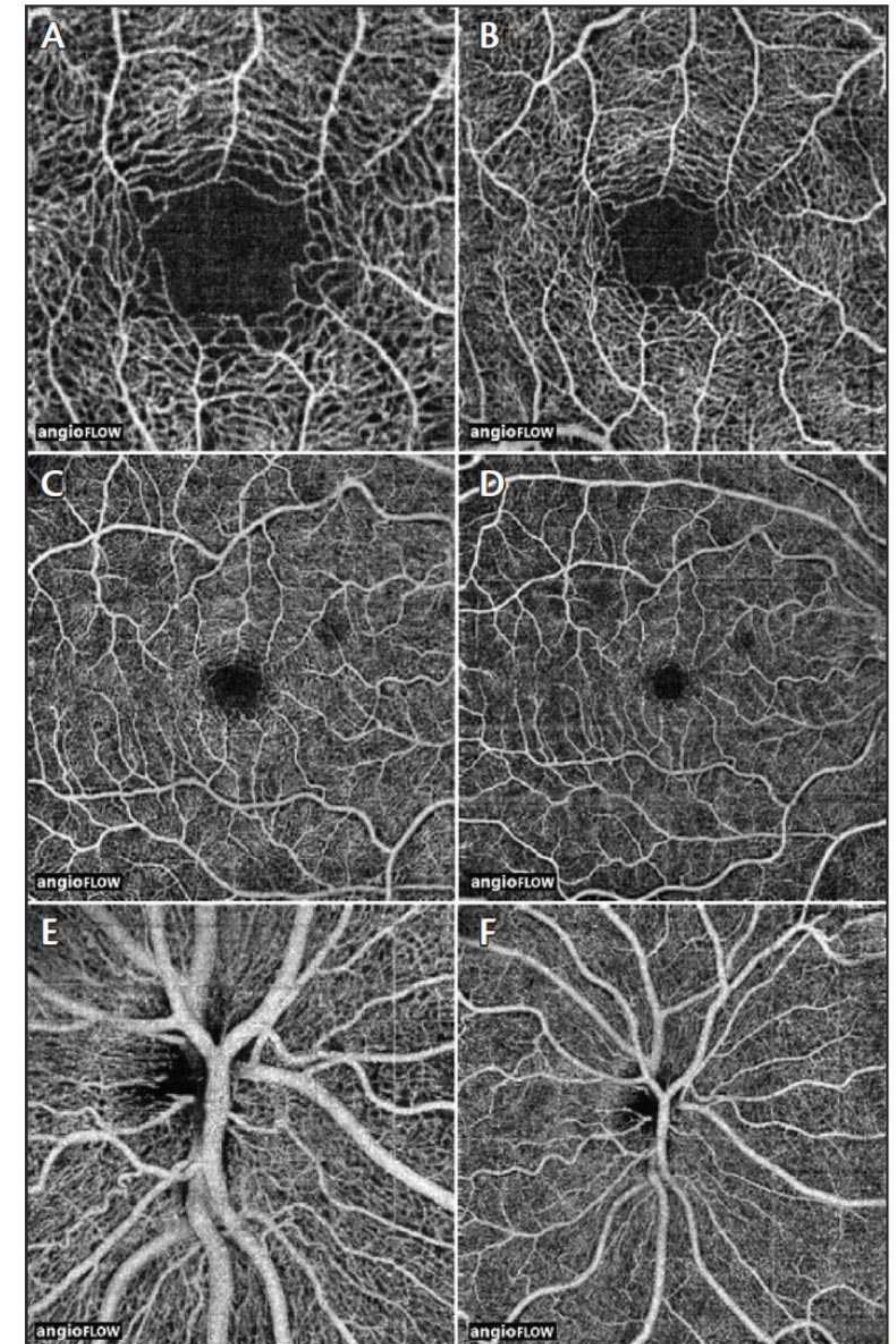


OCT - ANGIOGRAPHY WITHOUT FLUORESCENT DYE

Is an innovative technology for imaging the small blood vessels of the retina and their vascular flow **WITHOUT THE USE OF FLUORESCENT DYE**. This examination can be performed at our ophthalmological centre due to the well evolved optical tomography RTVue XR 100 Avanti Edition (Optovue U.S.A.)

Advantages

- It does not require eye drops for mydriasis
 - Usage of Fluorescent dye is not required.
 - A fast and easy method which is painless and comfortable to the patient.
- Since Fluorescent dye is not used, it doesn't cause allergies anaphylactic reaction or nausea to the patient.
- An anaesthesiologist is not required.
 - Allows frequent repetition for a correct monitoring of the patient.
- It is suitable procedure for all patients, even in those in which the use of contrast material is not allowed (allergy, hepaticrenal function disorders and cardiovascular diseases)



PREVENTION OF DIABETIC RETINOPATHY

NEVER miss regular checkups at the **Diabetologist, Cardiologist, Nephrologist and Ophthalmologist!!**



STOP
SMOKING



CHECK AND DECREASE
BODY WEIGHT



EXERCISE!
SAY NO TO
SENDENTARY LIFE STYLE



CHECK YOUR
BLOOD PRESSURE AND
CHOLESTEROL LEVELS



TAKE YOUR MEDICATION
ON REGULAR BASIS

HOW TO TREAT DIABETIC RETINOPATHY

Intravitreal Injections

The procedure is done by the infusion of specific drugs such as anti - VEGF (Avastin - EYLEA - Lucentis or Cortisone), for the management of macular edema and the reversal of pathological new vessels.

Photocoagulation with Laser

The purpose is to destroy the ischemic areas and decrease the macular edema. The treatment is short and takes place at the doctor's office with the help of a specific lamp.

Vitrectomy

A surgical procedure that is indicated when there is a haemorrhage inside the eye, retina detachment or presence of membranes in the eye