

# Screening test for DM

- recommends testing for prediabetes and diabetes beginning at age 45 years all patients. If results are normal, testing should be repeated at least every 3 years.
- recommends considering testing for prediabetes and diabetes in asymptomatic adults who are overweight and have 1 or more of the following additional risk factors :

Physical inactivity

First-degree relative with diabetes

Member of a high-risk ethnic population

Delivered a baby weighing over 9 lb or diagnosed with gestational diabetes mellitus

Hypertension ( $\geq 140/90$  mm Hg or on therapy for hypertension)

HDL cholesterol level under 35 mg/dL (0.90 mmol/L) and/or a triglyceride level above 250 mg/dL (2.82 mmol/L)

Polycystic ovary disease

IGT or IFG on previous testing

Other clinical conditions associated with insulin resistance (severe obesity, acanthosis nigricans)

History of cardiovascular disease

The background is a dark blue field with several large, semi-transparent gear shapes scattered across it. On the left side, there is a vertical strip with a colorful, abstract, and somewhat pixelated texture in shades of orange, red, and yellow.

\* Symptoms of hyperglycemia: polydipsia, polyuria, no weakness

\* Weight: steadily but slowly increasing

\* Family history: his mother suffered from diabetes? older sister was diagnosed with diabetes at the age of 55 years

\* gave birth to two children weighing 3100 g and 3200 g no gestational diabetes

\* any diet does not apply, some attempts at reducing salt

\* does not smoke, leads irregular lifestyle, events at work, does not perform any exercise

# Laboratory tests: FPG, OGTT



## Diabetes

Fasting plasma glucose	$\geq 7.0$ mmol/l (126mg/dl)
2-h plasma glucose*	<b>or</b>
	$\geq 11.1$ mmol/l (200mg/dl)

## Impaired Glucose Tolerance (IGT)

Fasting plasma glucose	$< 7.0$ mmol/l (126mg/dl)
2-h plasma glucose*	<b>and</b>
	$\geq 7.8$ and $< 11.1$ mmol/l (140mg/dl and 200mg/dl)

## Impaired Fasting Glucose (IFG)

Fasting plasma glucose	6.1 to 6.9mmol/l
2-h plasma glucose*	(110mg/dl to 125mg/dl)
	<b>and (if measured)</b>
	$< 7.8$ mmol/l (140mg/dl)

\* Venous plasma glucose 2-h after ingestion of 75g oral glucose load

\* If 2-h plasma glucose is not measured, status is uncertain as diabetes or IGT cannot be excluded

# Diagnostic criteria by ADA, EASD include the following:

- ★ A fasting plasma glucose (FPG) level of 126 mg/dL (7.0 mmol/L) or higher, *or*
- ★ A 2-hour plasma glucose level of 200 mg/dL (11.1 mmol/L) or higher during a 75-g oral glucose tolerance test (OGTT), *or*
- ★ A random plasma glucose of 200 mg/dL (11.1 mmol/L) or higher in a patient with classic symptoms of hyperglycemia or hyperglycemic crisis

# Metabolic Syndrom

**Diagnostic Criteria for Metabolic Syndrome**

Parameters	The IDF defines metabolic syndrome as a combination of <b>central obesity plus <math>\geq 2</math></b> of the following:	The National Cholesterol Education Program <b>Adult Treatment Panel III (NCEP – ATP III)</b> identifies Metabolic Syndrome as the presence of any <b>3</b> of the following:
<b>Central obesity</b>	<p>Europids: Sub-Saharan, Africans, Eastern Mediterranean, and Middle East (Arabs)</p> <ul style="list-style-type: none"> <li>• Male: <math>\geq 94</math> cm</li> <li>• Female: <math>\geq 80</math> cm</li> </ul> <p>South Asians, Malaysians, Asians, Indian, Chinese, Japanese, ethnic South and Central Americans</p> <ul style="list-style-type: none"> <li>• Male: <math>\geq 90</math> cm</li> <li>• Female: <math>\geq 80</math> cm</li> </ul>	<p>Men <math>&gt; 102</math> cm (<math>&gt; 40</math> inches)            Women <math>&gt; 88</math> cm (<math>&gt; 35</math> inches)</p>
<b>Triglycerides</b>	$\geq 1.7$ mmol/L	$\geq 1.7$ mmol/L ( $\geq 150$ mg/dL)
<b>HDL cholesterol</b>	Men $< 1.0$ mmol/L <b>or</b> $< 40$ mg/dL Women $< 1.3$ mmol/L <b>or</b> $< 50$ mg/dL	Men $< 1.0$ mmol/L <b>or</b> $< 40$ mg/dL Women $< 1.3$ mmol/L <b>or</b> $< 50$ mg/dL
<b>Blood pressure</b>	$\geq 130$ <b>or</b> $\geq 85$ mmHg	SBP $\geq 130$ <b>or</b> DBP $\geq 85$ mmHg
<b>Fasting glucose</b>	$> 5.6$ mmol/L <b>or</b> $\geq 100$ mg/dL	$\geq 5.6$ mmol/L ( $\geq 100$ mg/dL)

DBP: Diastolic blood pressure; HDL: High density lipoprotein; IDF: International Diabetes Federation; SBP: Systolic blood pressure

Ref: Leiter LA et al. Canadian Journal of Cardiology 27 (2011) e1– e33)



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## Self-monitoring of blood glucose

- ✱ marking contingent - usually in the morning on an empty stomach
- ✱ reduced glycemic profile - in the morning on an empty stomach and 90-120 min after each main meal (4 marks per day)
- ✱ The frequency depends on the prescribed treatment:
  - ✱ only diet and metformin → once a month shortened glycemic profile, if necessary. further indications glucose once a week at different times of the day
  - ✱ Oral antidiabetic drugs and / or GLP-1 → once a week shortened glycemic profile, every one indication of blood glucose at different times of the day

# Oral diabetes medications.

- ★ biguanides (metformin), a drug of first choice for patients with type 2 diabetes, do not cause weight gain or hypoglycemia, cheap, safe, contraindicated in renal failure (GFR  $<30$  ml / min /  $1.73$  m<sup>2</sup> ) in hepatic steatosis may be used but cautiously max. 3 g / d; preparations for the modified two-step release initially (XR) 0.5 g 1 twice daily with the evening meal; max. 2 g 1 twice daily.
- ★ Step 2: in the future  
The combination therapy of drugs: metformin + acting on the incretin (receptor agonists, glucagon-like peptide-1 (GLP-1) DPP-4 hereinafter), SGLP inhibitors, insulin, sulfonylurea