

PROCAM (Münster Heart Study)

Diabetes mellitus

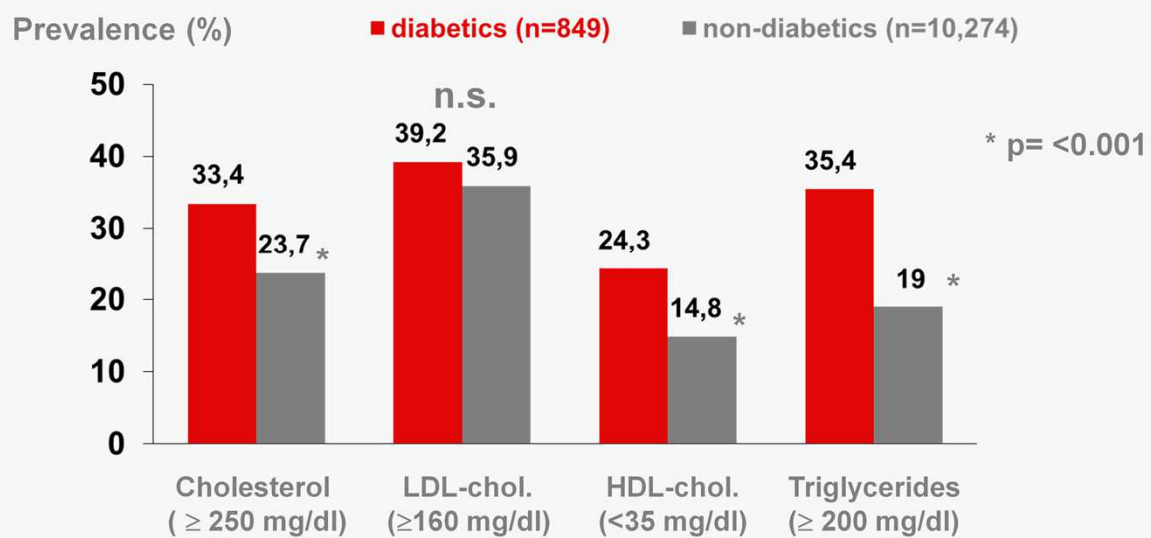
***Mean Values of Age-Standardized Factors for
Male Participants Aged 35-65 Years,
With and Without Diabetes Mellitus***

Variable	non-diabetics (n = 10,274)	diabetics (n = 849)	p
Age (years)	45.7 (7.0)	48.9 (6.8)	<0.001
Cholesterol (mg/dl)	222.7 (41.6)	234.0 (49.5)	<0.001
HDL-Cholesterol (mg/dl)	45.9 (12.1)	43.2 (12.3)	<0.001
LDL-Cholesterol (mg/dl)	147.6 (36.8)	151.3 (39.6)	0.02
Cholesterol/HDL-Cholesterol ratio	5.2 (1.7)	5.8 (2.5)	<0.001
LDL-Cholesterol/HDL-Cholesterol	3.4 (1.2)	3.6 (1.2)	<0.001
Triglycerides (mg/dl) ⁺	127.5	169.1	<0.001
⁺ geometric mean Values are mean and standard deviation (in brackets) unless otherwise indicated			
PROCAM			

***Mean Values of Age-Standardized Factors for
Male Participants Aged 35-65 Years,
With and Without Diabetes Mellitus***

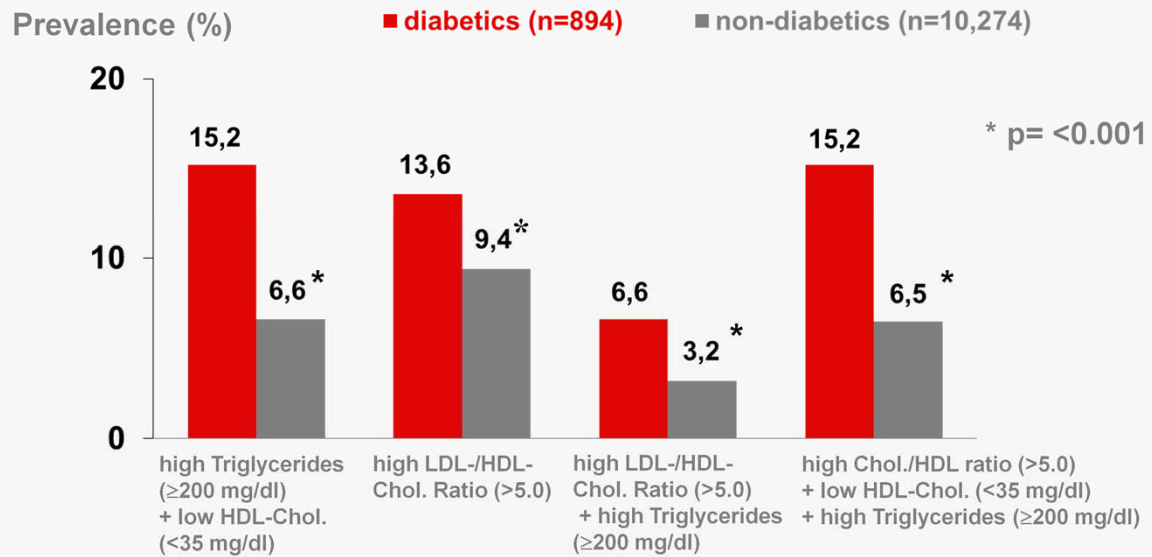
Variable	non-diabetics (n = 10,274)	diabetics (n = 849)	p
Age (years)	45.7 (6.9)	48.9 (6.8)	<0.001
Systolic blood pressure (mm Hg)	129.8 (17.1)	139.9 (19.6)	<0.001
Diastolic blood pressure (mm Hg)	84.5 (10.6)	88.4 (11.3)	<0.001
Body mass index (kg/m ²)	26.0 (3.0)	27.5 (3.4)	<0.001
Fibrinogen (mg/dl)*	255.1 (59.1)	264.1 (52.9)	0.009
<p>* n=3,996 in non-diabetics, n=310 in diabetics Values are mean and standard deviation (in brackets)</p> <p style="text-align: right;">PROCAM</p>			

Lipids in Diabetics



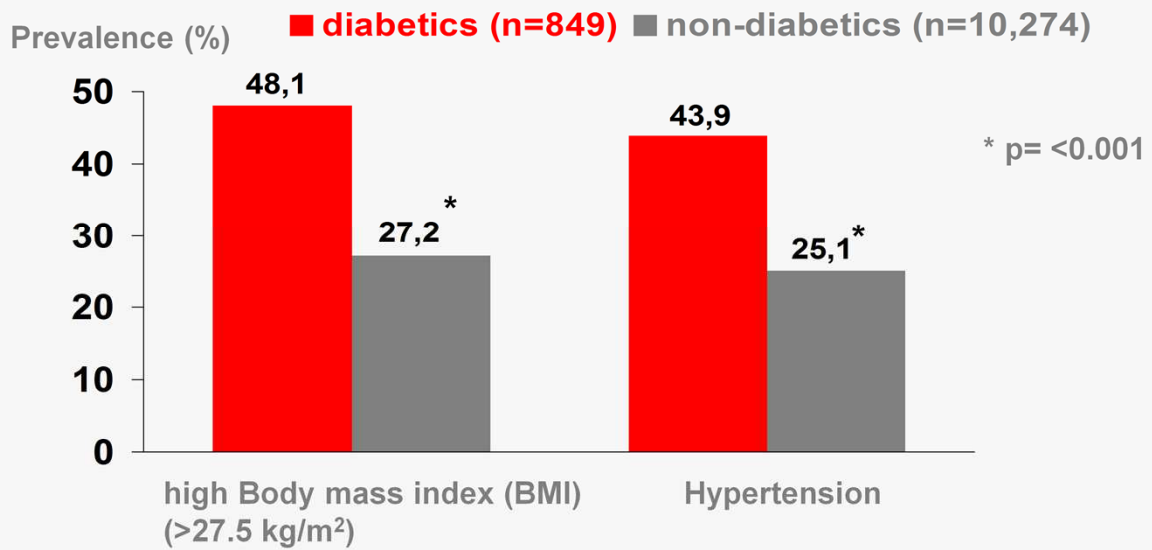
PROCAM

LDL-Cholesterol, HDL-Cholesterol and Triglycerides in Diabetics



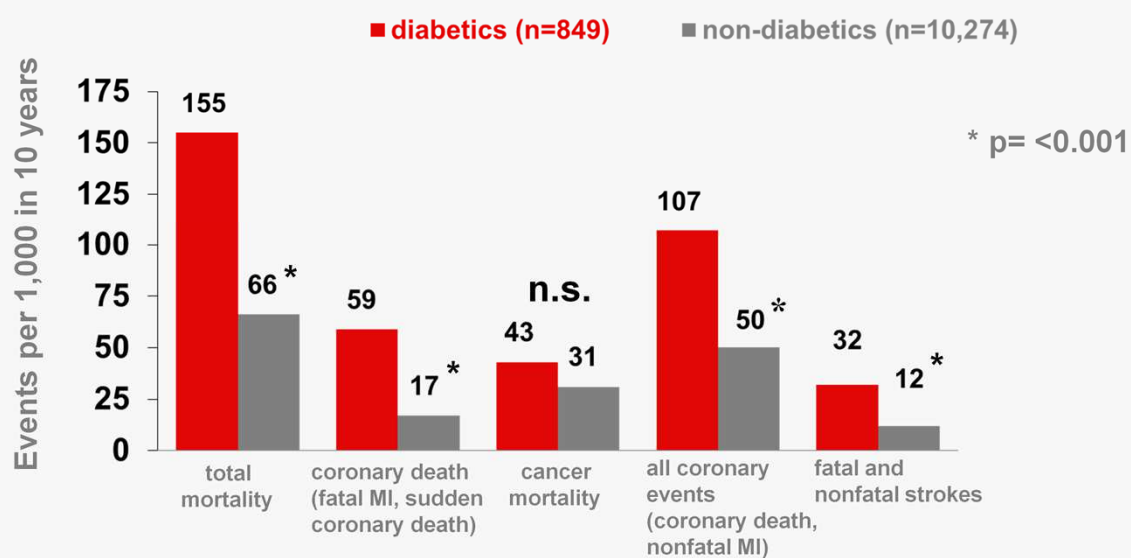
PROCAM

Obesity and Hypertension in Diabetics



PROCAM

Mortality, Coronary Events and Stroke in Diabetics



PROCAM

***Prevalence and Incidence of Diabetes Mellitus
in 36 to 60 Years Old Men and Women Who Were
Recruited by the PROCAM-Study and
had Follow-Up Examinations Within 4 to 10 Years***

Total population of 36 to 60 years old men with repeat examinations during 4 to 10 years follow-up	3,951
Excluded because of known diabetes mellitus	76
Excluded because of fasting glucose > 7 mmol/l	123
<i>No Diabetes mellitus and included into the prospective study</i>	<i>3,737</i>
Newly developed known diabetes	31
Newly developed but unknown diabetes mellitus detected by fasting glucose > 7 mmol/l	169
<i>Sum of cases with newly developed diabetes mellitus (=cases)</i>	<i>200</i>
<i>No Diabetes mellitus during follow-up (=controls)</i>	<i>3,537</i>

von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

**Mean Values of Age-Standardized Risk Factors for
Male Participants, aged 36 to 65 Years, With (DM+) and
Without (DM-) Development of Diabetes Mellitus
Within 4 to 10 Years (mean 6.3 years) Follow-Up**

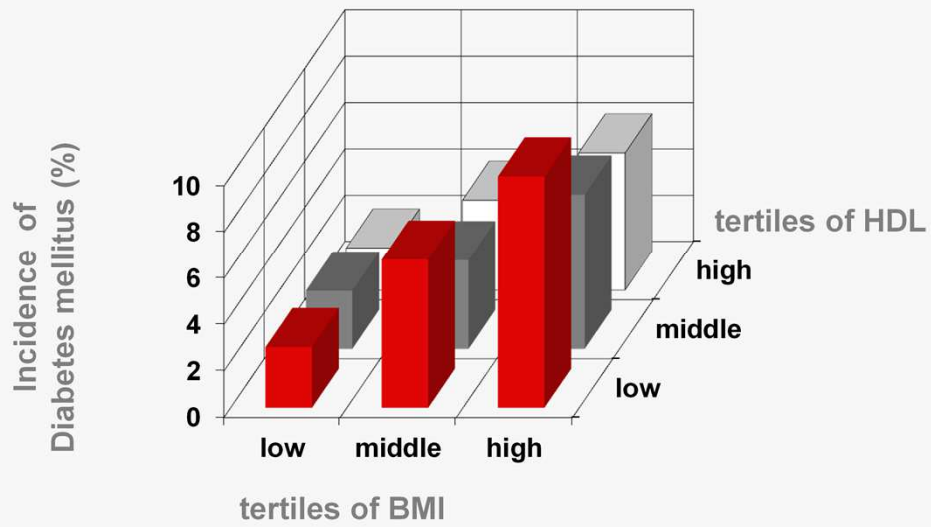
	DM- (n=3,537)	DM+ (n=200)
Follow-up (month)	76.4 ± 15.0	78.8 ± 15.7*
Age (years)	46.7 ± 5.3	46.7 ± 5.3
BMI (kg/m ²)	26.1 ± 2.9	27.9 ± 3.5**
Systolic blood pressure (mm Hg)	128.9 ± 16.8	135.9 ± 20.3**
Diastolic blood pressure (mm Hg)	84.5 ± 10.5	89.1 ± 12.4**
Glucose (mmol/l)	5.47 ± 0.51	6.07 ± 0.57**
Cholesterol (mmol/l)	5.84 ± 1.07	5.91 ± 1.09
Triglycerides (mmol/l) ¹	1.45	1.84**
HDL-cholesterol (mmol/l)	1.22 ± 0.31	1.13 ± 0.32**
LDL-cholesterol (mmol/l)	3.86 ± 0.95	3.84 ± 0.96
Uric acid (μmol/l)	342 ± 66	366 ± 78**

¹ geometric mean ; * p<0.05; ** p<0.001

von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

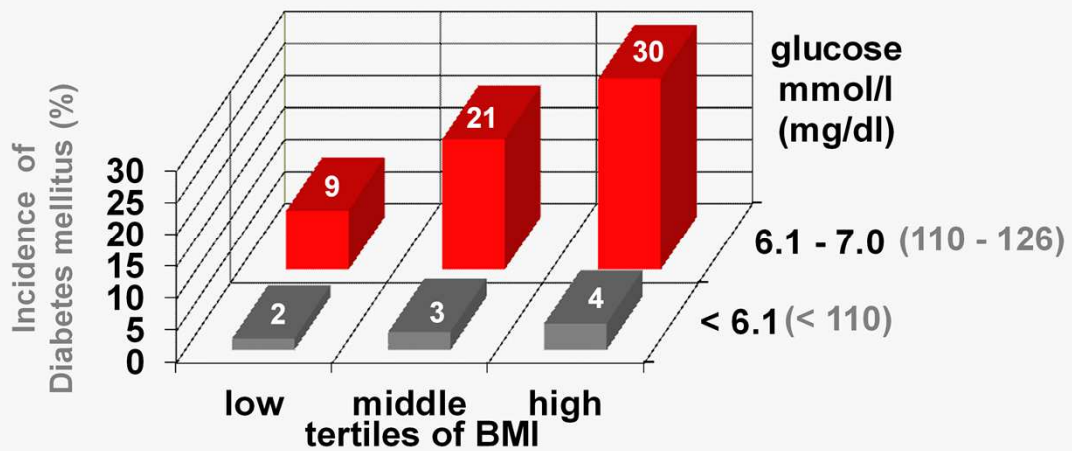
Incidence of Diabetes Mellitus According to Body Mass Index and HDL-Cholesterol



3,737 men aged 36 to 65 years; 4 to 10 years of follow-up; 200 new cases of diabetes mellitus
Von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

Incidence of Diabetes Mellitus According to Body Mass Index and Fasting Glucose



3,737 men aged 36 to 65 years; 4 to 10 years of follow-up; 200 new cases of diabetes mellitus

von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

Multiple Logistic Function (MLF) Analysis of Risk Factors for the Development of Diabetes Mellitus

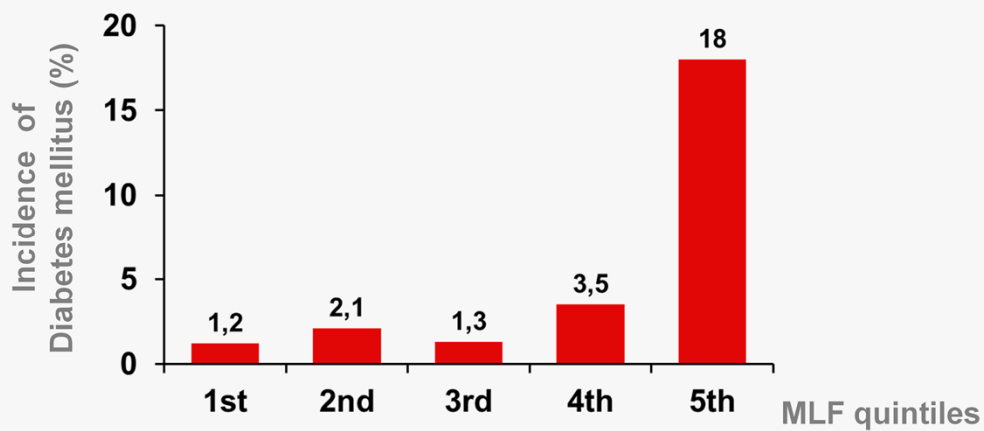
	Parameter Estimate	Standard Error	p (chi-square test)
Age (years)	0.0259	0.0150	0.0841
BMI (10 kg/m ²)	0.0105	0.0026	0.0001
Hypertension (yes=1/no=0)	0.1674	0.0699	0.0166
Glucose (mmol/l)	0.0064	0.0051	0.0000
Family history of diabetes mellitus (yes=1/no=0)	0.4187	0.1732	0.0156
Triglycerides (mmol/l)	2.3×10^{-6}	5.7×10^{-6}	0.6398
HDL-cholesterol (mmol/l)	42.8×10^{-3}	20×10^{-3}	0.0318
Uric acid (μmol/l)	0.0060	0.0073	0.8869

3,737 men aged 36 to 65 years; 4 to 10 years of follow-up;
200 new cases of diabetes mellitus

von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

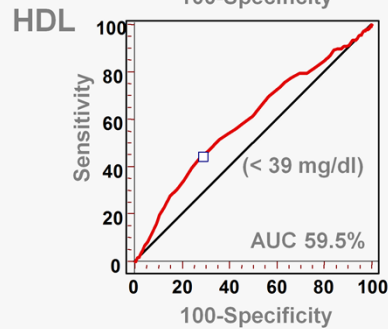
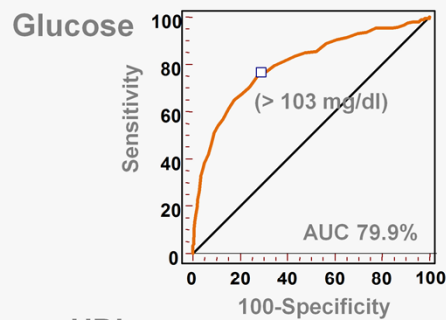
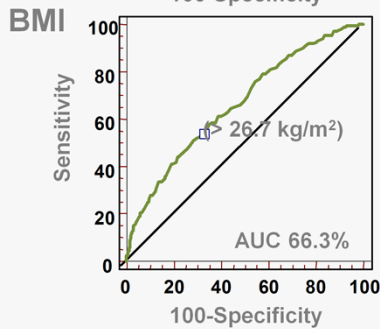
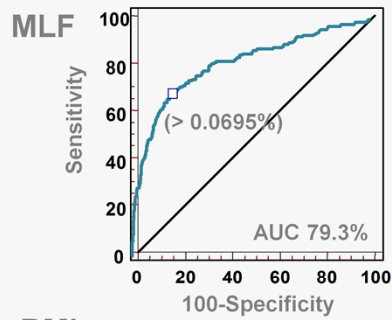
Incidence of Diabetes Mellitus According to Quintiles of Risk Estimated by MLF Analysis



Independent risk factors contributing to MLF are:
age, glucose, BMI, HDL-cholesterol, family history of diabetes mellitus, hypertension
3,737 men aged 36 to 65 years; 4 to 10 years of follow-up; 200 new cases of diabetes mellitus
von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM

ROC Curves of Risk Factors of Diabetes Mellitus



3,737 men aged
36 to 65 years;
4 to 10 years of
follow-up;
200 new cases
of diabetes mellitus

von Eckardstein, Schulte, Assmann; JCEM, 2000;85:3101-8

PROCAM