

Kardiovaskuläre Risikofaktoren

Alter

Geschlecht

Familiäre Belastung

*nicht
beeinflussbar*

Dyslipidämie

Diabetes mellitus

Übergewicht/vermehrter Bauchumfang

Rauchen

Sedentarität

Ungesunde Ernährung

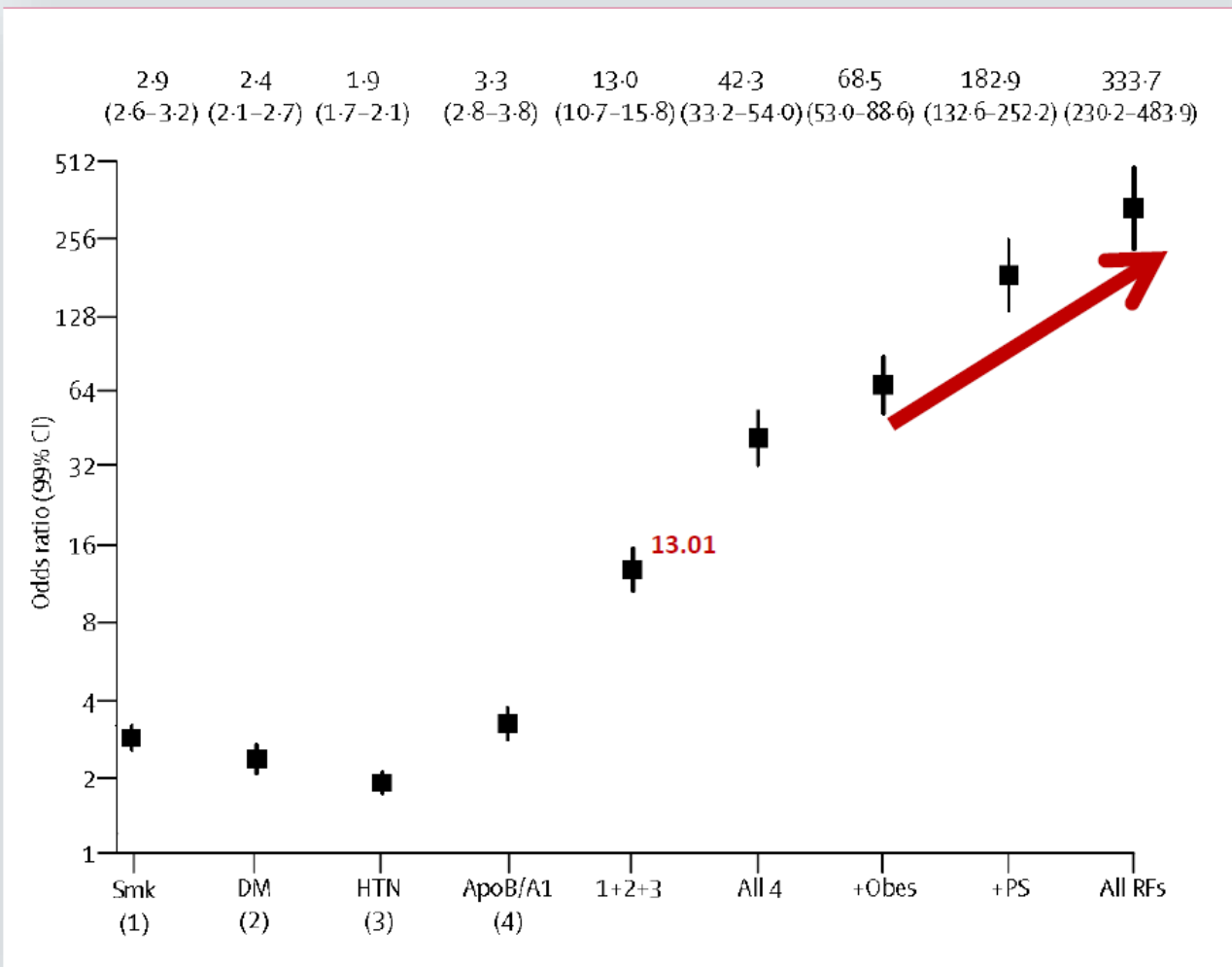
Distress

Bluthochdruck



beeinflussbar

Risikofaktoren für Koronare Herzkrankheit und Myokardinfarkt



Yusuf S., et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004; 364: 937-52

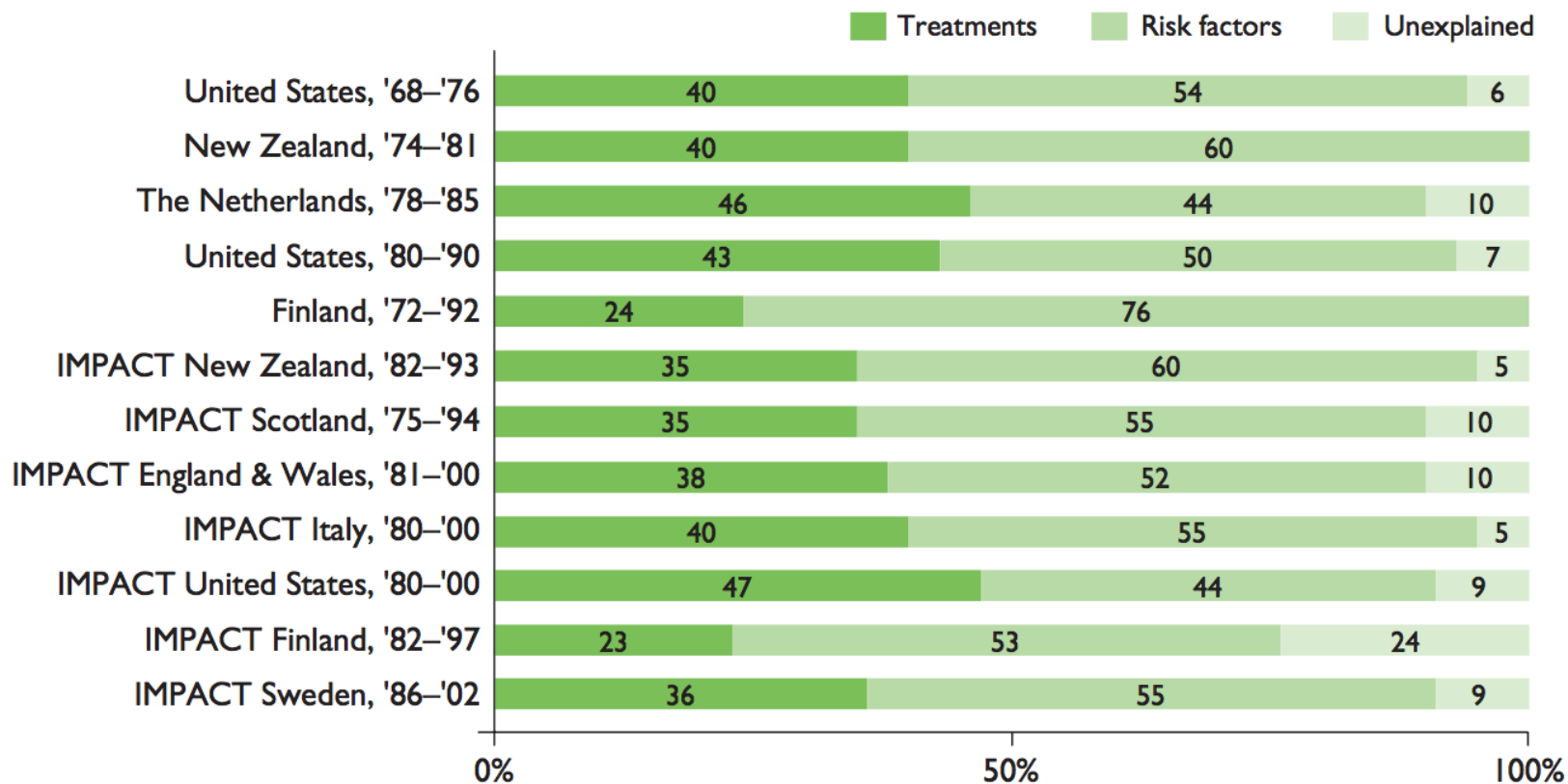


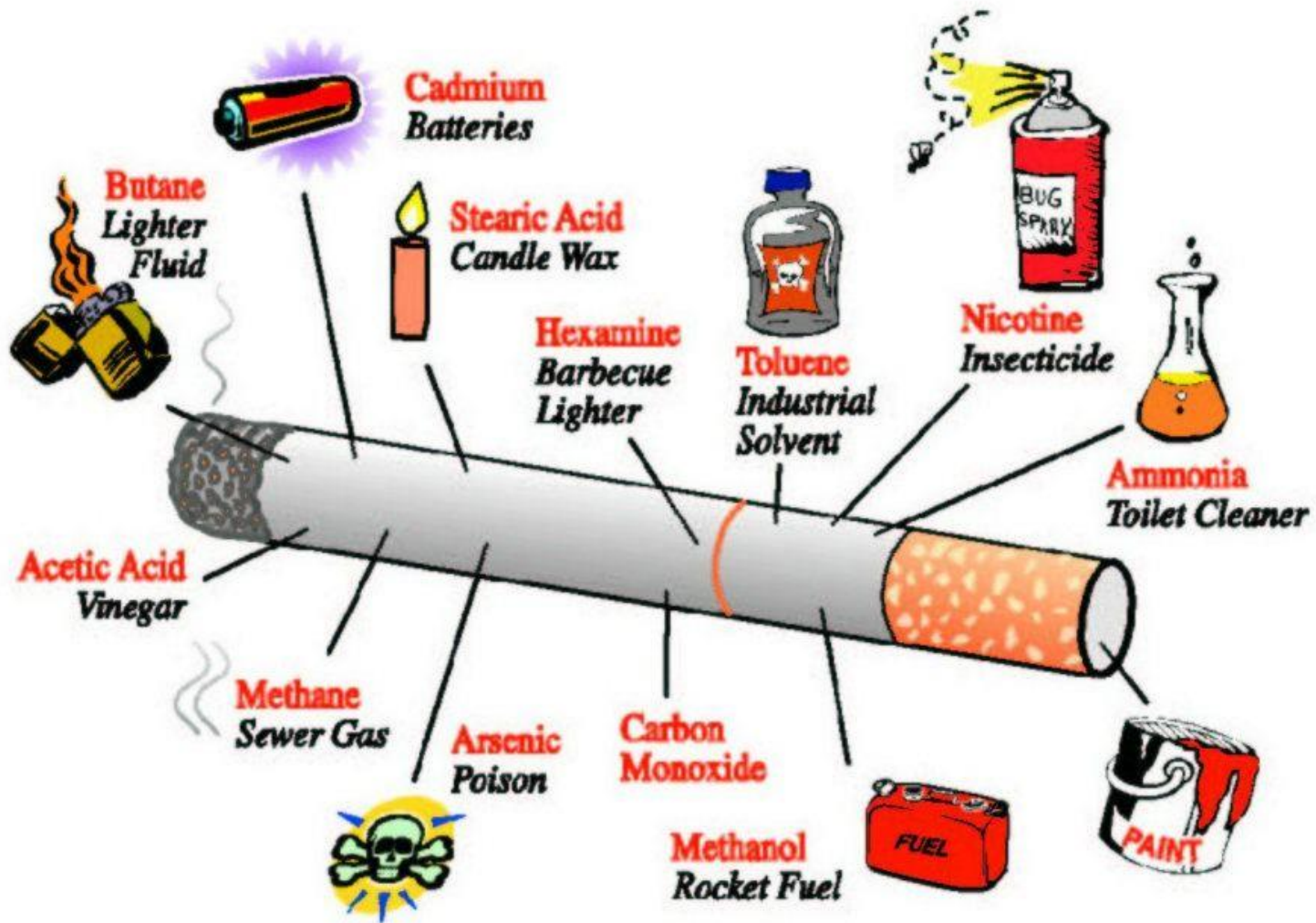
Figure 1 Percentage of the decrease in deaths from coronary heart disease attributed to treatments and risk factor changes in different populations (adapted from Di Chiara *et al.*³¹)

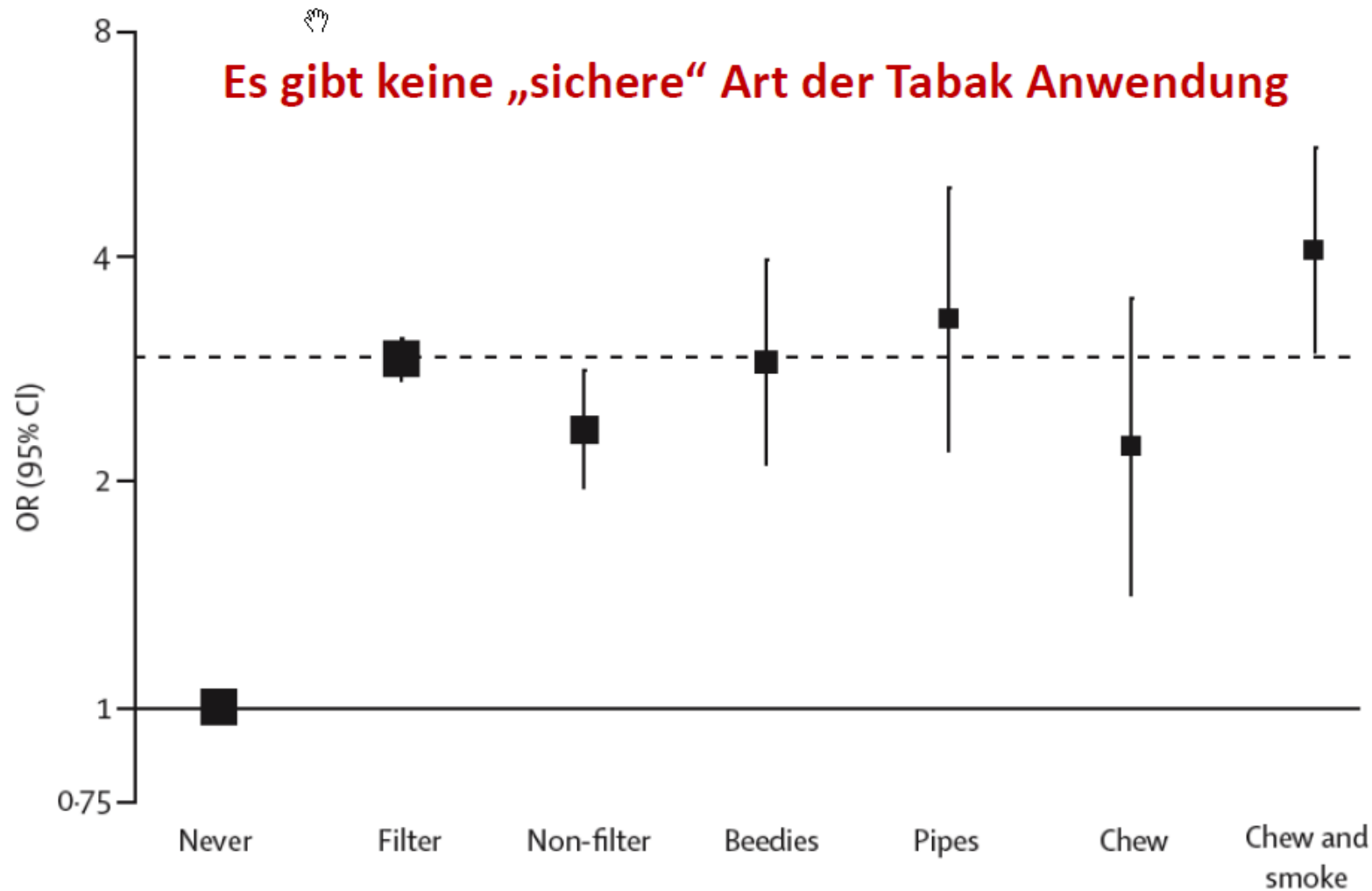
Table 4 Guideline recommendations vs. achievements in patients with established coronary heart disease in EUROASPIRE III

Guideline recommendations	Proportions at goal
Smoking cessation among smokers	48
Regular physical activity	34
BMI <25 kg/m ²	18
Waist circumference <94 cm (men)	25
<80 cm (women)	12
Blood pressure <140/90 mmHg	50
Total cholesterol <4.5 mmol/L (175 mg/dL)	49
LDL cholesterol <2.5 mmol/L (100 mg/dL)	55
Among patients with type 2 diabetes: Fasting glycaemia <7.0 mmol/L (125 mg/dL)	27
HbA _{1c} <6.5%	35

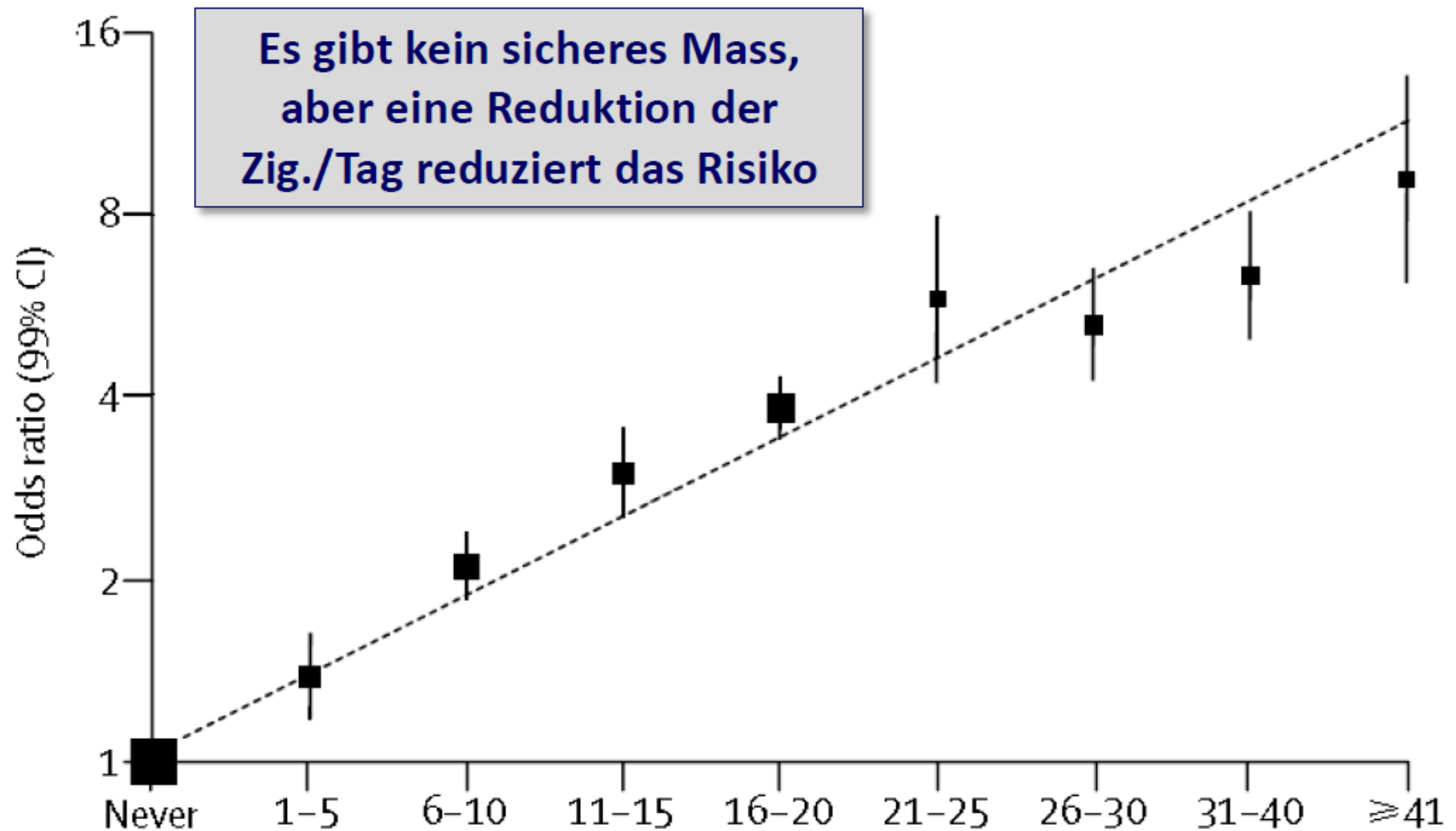
BMI = body mass index; HbA_{1c} = glycated haemoglobin; LDL = low-density lipoprotein.

Rauchen/Nikotin

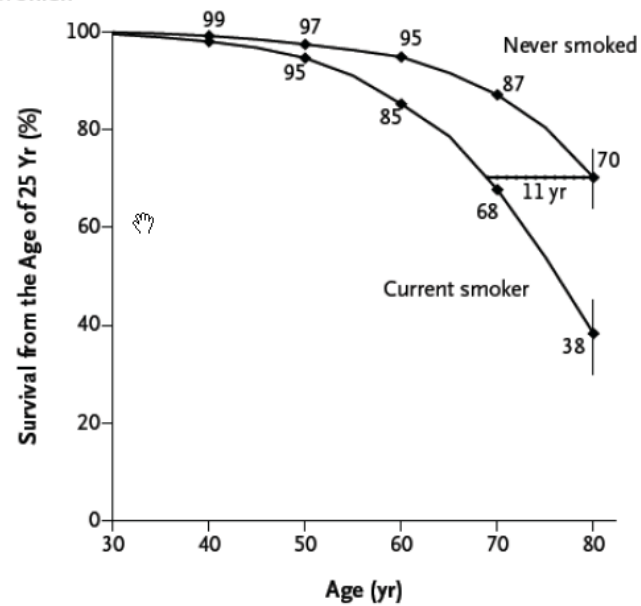
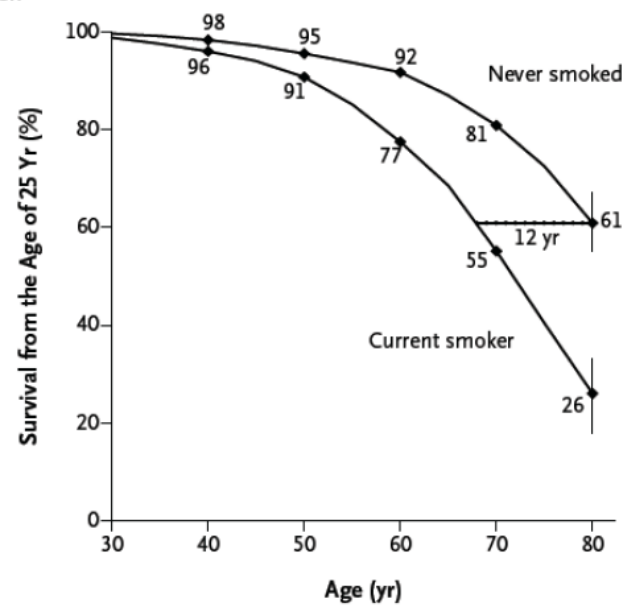


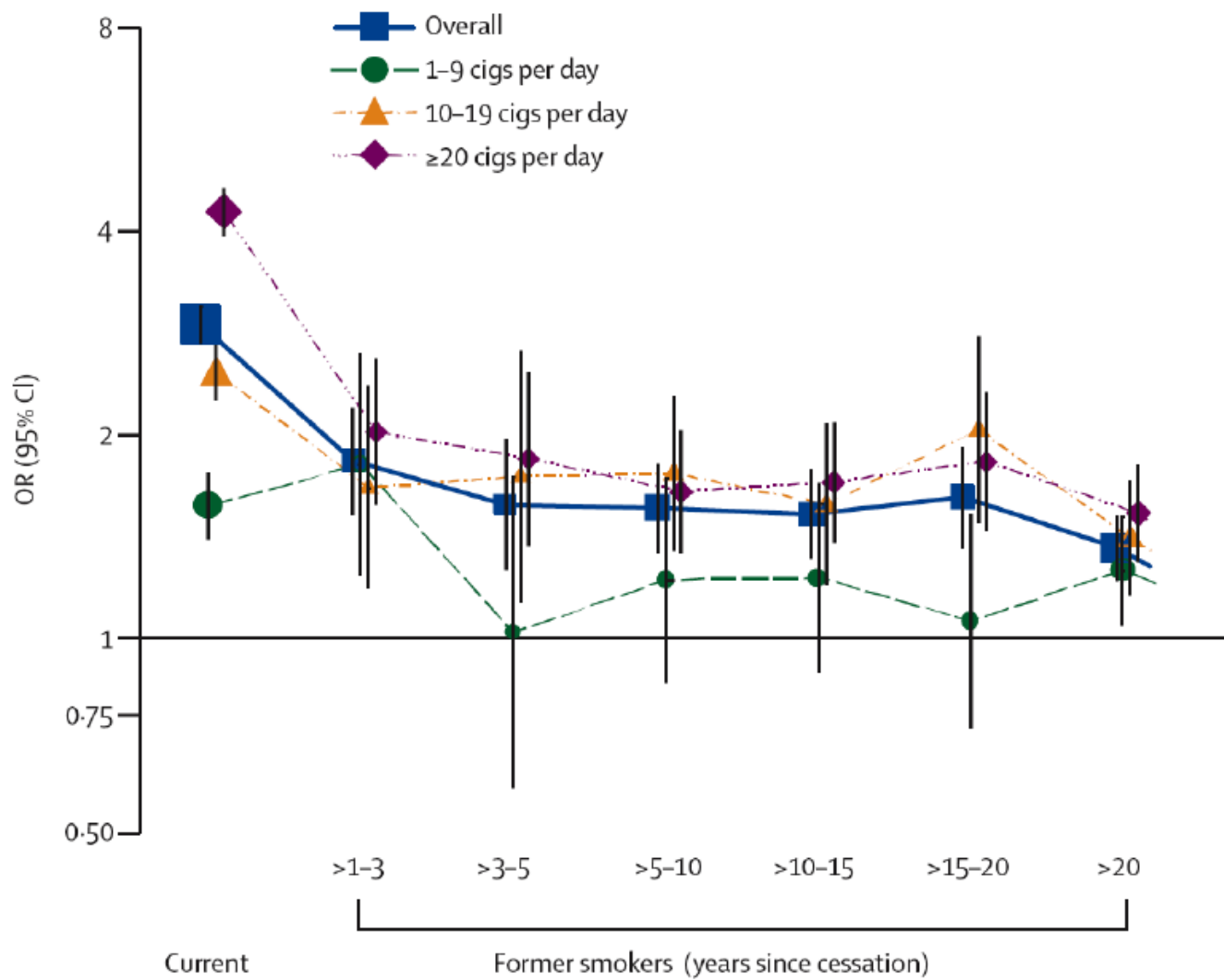






Yusuf S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004 Sep 11-17;364(9438):937-52

A Women**B Men**





« Pitfalls » im Rahmen der Nikotinentwöhnung

■ **Entzugssyndrom:**

- Abhängigkeit und Nikotinentzug erklären, Nikotinersatz anbieten

■ **Rückfall/Rückfälle und Scheitern:**

- Durchschnittlich 5 Versuche, um Ex-RaucherIn zu werden, «Lernprozess»

■ **Stress:**

- Günstigen Moment wählen (keine Krise, aber auch nicht hinausschieben!)
- Zur Stressbewältigung: Entspannung, körperliche Betätigung

■ **Rauchende im Umfeld:**

- Nichtraucherbereiche benutzen; lernen, angebotene „Zigi“ abzulehnen

■ **Gewichtszunahme:** *(Folge aus Entzugs und Kompensation durch Essen)*

- Gewichtszunahme bei Rauchstopp: 80% der Fälle
- Durchschnittlich 4-5 kg Zunahme nach 12 Monaten
- Grösste Gewichtszunahme innerhalb ersten 3 Monaten

Stress, psychosoziales Umfeld

Table 6 Core questions for the assessment of psychosocial risk factors in clinical practice

Low socio-economic status	What is your highest educational degree?
	Are you a manual worker?
Work and family stress	Do you lack control over how to meet the demands at work?
	Is your reward inappropriate for your effort?
	Do you have serious problems with your spouse?
Social isolation	Are you living alone?
	Do you lack a close confidant?
Depression	Do you feel down, depressed, and hopeless?
	Have you lost interest and pleasure in life?
Anxiety	Do you frequently feel nervous, anxious, or on edge?
	Are you frequently unable to stop or control worrying?
Hostility	Do you frequently feel angry over little things?
	Do you often feel annoyed about other people's habits?
Type D personality	In general, do you often feel anxious, irritable, or depressed?
	Do you avoid sharing your thoughts and feelings with other people?

acute coronary syndromes have been attributed to

- **acute and chronic emotional distress**
- **stressful life events**
- **disasters such as earthquakes**

In addition, studies have found that

- **personality**
- **depression**
- **anxiety**
- **anger**

were risk factors for cardiovascular disease

Broken Heart: A Statistical Study of Increased Mortality among Widowers

C. MURRAY PARKES,* M.D., D.P.M.; B. BENJAMIN,† PH.D., F.I.A.; R. G. FITZGERALD,‡ M.D.

Brit. med. J., 1969, 1, 740-743

TABLE I.—Cause of Death Among the 213 Widowers Who Died Within Six Months of Their Wives Compared With the Number Expected from the Mortality Rate of Married Males of the Same Age in England and Wales During 1957

Cause of Death	No. of Deaths	
	Actual	Expected
Coronary thrombosis and other arteriosclerotic and degenerative heart disease	77	46
Influenza, pneumonia, and bronchitis	29	20
Other heart and circulatory disease	24	15
Vascular lesions affecting C.N.S.	22	22
Cancer of other sites	22	19
Cancer of lung and bronchus	8	7
Infectious diseases	4	1
Other causes	27	23
Total	213	153

Psychological stress and fatal heart attack: the Athens (1981) earthquake natural experiment.

Trichopoulos D, Katsouyanni K, Zavitsanos X, Tzonou A, Dalla-Vorgia P.

Abstract

The effects of acute and subacute psychological stress caused by a sudden general disaster on mortality from atherosclerotic heart disease (underlying cause) and cardiac events (proximate cause) were investigated by comparing total and cause-specific mortality during the days after a major earthquake in Athens in 1981 with the mortality during the surrounding month and the corresponding periods of 1980 and 1982. There was an excess of deaths from cardiac and external causes on the days after the major earthquake, but no excess of deaths from cancer and little, if any, excess of deaths from other causes. The excess mortality was more evident when atherosclerotic heart disease was considered as the underlying cause (5, 7, and 8 deaths on the first three days, respectively; background mean deaths per day 2.6; upper 95th centile 5) than when cardiac events in general were considered as the proximate cause (9, 11, and 14 deaths on the first three days, respectively; background mean 7.1, upper 95th centile 12).

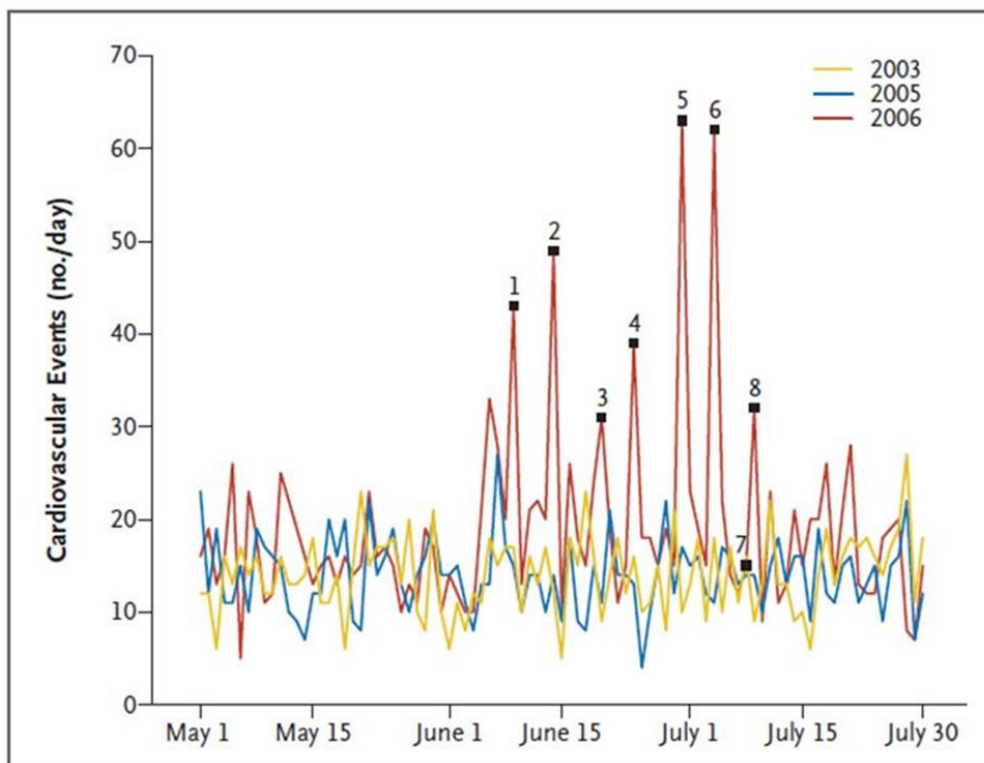


Figure 1. Daily Cardiovascular Events in the Study Population from May 1 to July 31 in 2003, 2005, and 2006.

The FIFA World Cup 2006 in Germany started on June 9, 2006, and ended on July 9, 2006. The 2006 World Cup matches with German participation are indicated by numbers 1 through 7: match 1, Germany versus Costa Rica; match 2, Germany versus Poland; match 3, Germany versus Ecuador; match 4, Germany versus Sweden; match 5, Germany versus Argentina; match 6, Germany versus Italy; and match 7, Germany versus Portugal (for third-place standing). Match 8 was the final match, Italy versus France.

- Major depression **develops in almost 20 percent of patients** after MI, while over 33 percent have significant symptoms of depression soon after an MI
- Depression is associated with poor compliance with recommendations for post MI therapy
- **Spontaneous remission of depressive symptoms occurs in approximately one-half of cases of post-MI depression;** the other cases either persist or remit and relapse within one year [
- This suggests that a substantial number of patients may benefit from treatment of depression following an MI.

Gesunde Ernährung



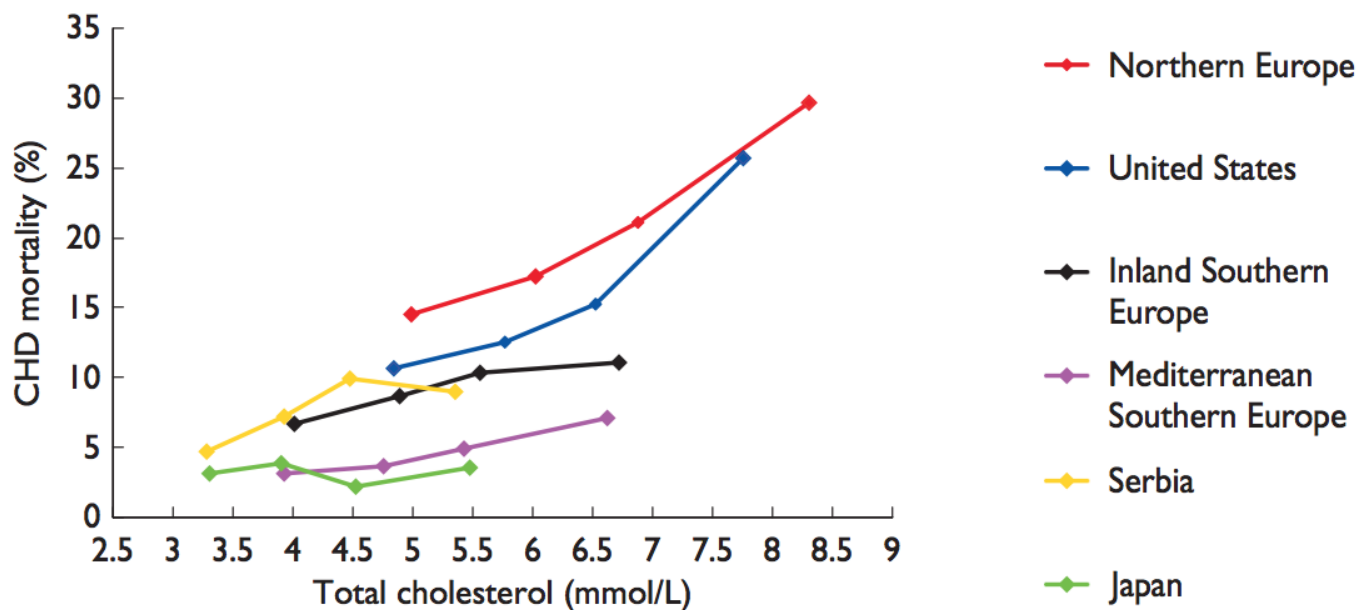


Figure 8 Cumulative 25-year coronary heart disease (CHD) mortality rates in different cohorts of the Seven Countries Study, according to baseline quartiles of total cholesterol level, adjusted for age, smoking, and blood pressure.³⁰⁴

in cardiovascular risk remained (*Figure 8*).³⁰⁴ The diet consumed in the Mediterranean cohorts of the Seven Countries Study is probably an important factor underlying the large difference in CVD rates between southern and northern Europe.

The concept of the Mediterranean diet comprises many of the nutrients and foods that have been discussed previously: a high intake of fruits, vegetables, legumes, wholegrain products, fish, and unsaturated fatty acids (especially olive oil), a moderate consumption of alcohol (mostly wine, preferably consumed with meals), and a low consumption of (red) meat, dairy products, and saturated fatty acids.

✂ Possible Consensus on Nutrition Recommendations:

1. **Eat „WHOLE foods“ and avoid „PROCESSED foods“**
2. **If insulin resistant: avoid sugars and starchy foods**
3. **„Fat is your Friend“ (olive oil, nuts, dairy products, fish)**
4. **Meat, eggs and full-fat dairy products are „o.k.“**

Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study.

Dehghan M¹, Mente A², Zhang X³, Swaminathan S⁴, Li W⁵, Mohan V⁶, Iqbal R⁷, Kumar R⁸, Wentzel-Viljoen E⁹, Rosengren A¹⁰, Amma LJ¹¹, Avezum A¹², Chifamba J¹³, Diaz R¹⁴, Khatib R¹⁵, Lear S¹⁶, Lopez-Jaramillo P¹⁷, Liu X⁵, Gupta R¹⁸, Mohammadifard N¹⁹, Gao N⁵, Oguz A²⁰, Ramli AS²¹, Seron P²², Sun Y⁵, Szuba A²³, Tsolekile L²⁴, Wielgosz A²⁵, Yusuf R²⁶, Hussein Yusufali A²⁷, Teo KK³, Rangarajan S³, Dagenais G²⁸, Bangdiwala SI³, Islam S³, Anand SS²⁹, Yusuf S³; Prospective Urban Rural Epidemiology (PURE) study investigators.

✚ Collaborators (326)

✚ Author information

Abstract

BACKGROUND: The relationship between macronutrients and cardiovascular disease and mortality is controversial. Most available data are from European and North American populations where nutrition excess is more likely, so their applicability to other populations is unclear.

METHODS: The Prospective Urban Rural Epidemiology (PURE) study is a large, epidemiological cohort study of individuals aged 35-70 years (enrolled between Jan 1, 2003, and March 31, 2013) in 18 countries with a median follow-up of 7.4 years (IQR 5.3-9.3). Dietary intake of 135 335 individuals was recorded using validated food frequency questionnaires. The primary outcomes were total mortality and major cardiovascular events (fatal cardiovascular disease, non-fatal myocardial infarction, stroke, and heart failure). Secondary outcomes were all myocardial infarctions, stroke, cardiovascular disease mortality, and non-cardiovascular disease mortality. Participants were categorised into quintiles of nutrient intake (carbohydrate, fats, and protein) based on percentage of energy provided by nutrients. We assessed the associations between consumption of carbohydrate, total fat, and each type of fat with cardiovascular disease and total mortality. We calculated hazard ratios (HRs) using a multivariable Cox frailty model with random intercepts to account for centre clustering.

FINDINGS: During follow-up, we documented 5796 deaths and 4784 major cardiovascular disease events. Higher carbohydrate intake was associated with an increased risk of total mortality (highest [quintile 5] vs lowest quintile [quintile 1] category, HR 1.28 [95% CI 1.12-1.46], $p_{\text{trend}}=0.0001$) but not with the risk of cardiovascular disease or cardiovascular disease mortality. Intake of total fat and each type of fat was associated with lower risk of total mortality (quintile 5 vs quintile 1, total fat: HR 0.77 [95% CI 0.67-0.87], $p_{\text{trend}}<0.0001$; saturated fat, HR 0.86 [0.76-0.99], $p_{\text{trend}}=0.0088$; monounsaturated fat: HR 0.81 [0.71-0.92], $p_{\text{trend}}<0.0001$; and polyunsaturated fat: HR 0.80 [0.71-0.89], $p_{\text{trend}}<0.0001$). Higher saturated fat intake was associated with lower risk of stroke (quintile 5 vs quintile 1, HR 0.79 [95% CI 0.64-0.98], $p_{\text{trend}}=0.0498$). Total fat and saturated and unsaturated fats were not significantly associated with risk of myocardial infarction or cardiovascular disease mortality.

INTERPRETATION: High carbohydrate intake was associated with higher risk of total mortality, whereas total fat and individual types of fat were related to lower total mortality. Total fat and types of fat were not associated with cardiovascular disease, myocardial infarction, or cardiovascular disease mortality, whereas saturated fat had an inverse association with stroke. Global dietary guidelines should be reconsidered in light of these findings.

FUNDING: Full funding sources listed at the end of the paper (see Acknowledgments).

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/ 4,390(10107)2037-2049. doi: 10.1016/S0140-6736(17)32252-3. Epub 2017 Aug 29.

etable, and legume intake, and cardiovascular disease and deaths in 18 countries prospective cohort study.

A², Dehghan M¹, Rangarajan S³, Zhang X³, Swaminathan S³, Dagenais G⁴, Gupta R⁵, Mohan V⁶, Lear S⁷, Bangdiwala SI³, Schutte AE⁸, E⁹, Avezum A¹², Aluntias Y¹⁰, Yusuf K¹¹, Ismail N¹², Peer N¹³, Chifamba J¹⁴, Diaz R¹⁵, Rahman Q¹⁶, Mohammadifard N¹⁷, Lana E¹⁸, Zalonka P¹⁹, Yusufali A²⁰, Iqbal R²¹, Lopez-Jaramillo P²², Khatib R²³, Rosengren A²⁴, Kuty YR²⁵, Li W²⁶, Liu X²⁷, Yin L²⁸, Teo KK³, Anand SS²⁹, Yusuf S³; Prospective Urban Rural Epidemiology (PURE) study investigators.

ors (326)

ormation

ID: The association between intake of fruits, vegetables, and legumes with cardiovascular disease and deaths has been extensively in Europe, the USA, Japan, and China, but little or no data are available from the Middle East, South America, Africa,

'e did a prospective cohort study (Prospective Urban Rural Epidemiology [PURE]) in 135 335 individuals aged 35 to 70 years vascular disease from 613 communities in 18 low-income, middle-income, and high-income countries in seven geographical America and Europe, South America, the Middle East, south Asia, China, southeast Asia, and Africa. We documented their diet specific food frequency questionnaires at baseline. Standardised questionnaires were used to collect information about factors, socioeconomic status (education, income, and employment), lifestyle (smoking, physical activity, and alcohol intake), and medication use, and family history of cardiovascular disease. The follow-up period varied based on the date when rgan at each site or country. The main clinical outcomes were major cardiovascular disease (defined as death from r causes and non-fatal myocardial infarction, stroke, and heart failure), fatal and non-fatal myocardial infarction, fatal and non-cardiovascular mortality, non-cardiovascular mortality, and total mortality. Cox frailty models with random effects were used to ations between fruit, vegetable, and legume consumption with risk of cardiovascular disease events and mortality.

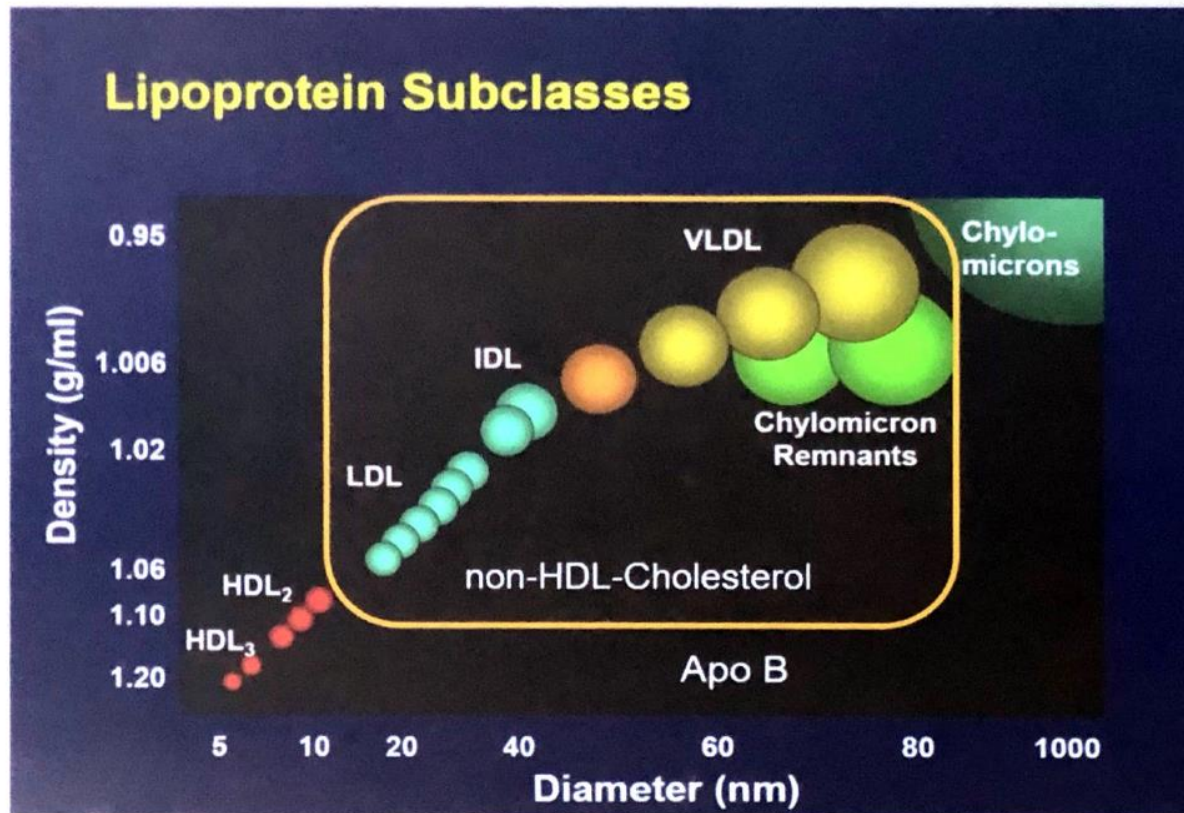
rticipants were enrolled into the study between Jan 1, 2003, and March 31, 2013. For the current analysis, we included all :ome events in the PURE study database through March 31, 2017. Overall, combined mean fruit, vegetable and legume intake was 3.91 (SD 2.77) servings per day. During a median 7.4 years (5.5-9.3) of follow-up, 4784 major cardiovascular disease events, 1649 cardiovascular deaths, and 5796 total deaths were documented. Higher total fruit, vegetable, and legume intake was inversely associated with major cardiovascular disease, myocardial infarction, cardiovascular mortality, non-cardiovascular mortality, and total mortality in the models adjusted for age, sex, and centre (random effect). The estimates were substantially attenuated in the multivariable adjusted models for major cardiovascular disease (hazard ratio [HR] 0.90, 95% CI 0.74-1.10, $p_{\text{trend}}=0.1301$), myocardial infarction (0.99, 0.74-1.31; $p_{\text{trend}}=0.2033$), stroke (0.92, 0.67-1.25; $p_{\text{trend}}=0.7092$), cardiovascular mortality (0.73, 0.53-1.02; $p_{\text{trend}}=0.0568$), non-cardiovascular mortality (0.84, 0.68-1.04; $p_{\text{trend}}=0.0038$), and total mortality (0.81, 0.68-0.96; $p_{\text{trend}}<0.0001$). The HR for total mortality was lowest for three to four servings per day (0.78, 95% CI 0.69-0.88) compared with the reference group, with no further apparent decrease in HR with higher consumption. When examined separately, fruit intake was associated with lower risk of cardiovascular, non-cardiovascular, and total mortality, while legume intake was inversely associated with non-cardiovascular death and total mortality (in fully adjusted models). For vegetables, raw vegetable intake was strongly associated with a lower risk of total mortality, whereas cooked vegetable intake showed a modest benefit against mortality.

INTERPRETATION: Higher fruit, vegetable, and legume consumption was associated with a lower risk of non-cardiovascular, and total mortality. Benefits appear to be maximum for both non-cardiovascular mortality and total mortality at three to four servings per day (equivalent to 375-500 g/day).

FUNDING: Full funding sources listed at the end of the paper (see Acknowledgments).

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(Pre-)Diabetic Dyslipoproteinemia and **non-HDL-Cholesterol**



Non-HDL-C, ApoB and Triglycerides all improved with

1. **LESS CARBS (sugars, starchy foods)**
2. **MORE FAT, preferably MUFA and SFA (sic!)**

Compared to high GI-Carbs, SFA from dairy are **BENEFICIAL**.

There can be no „One Size Fits All“-Diet !!!

Individualize nutrition recommendations according to:

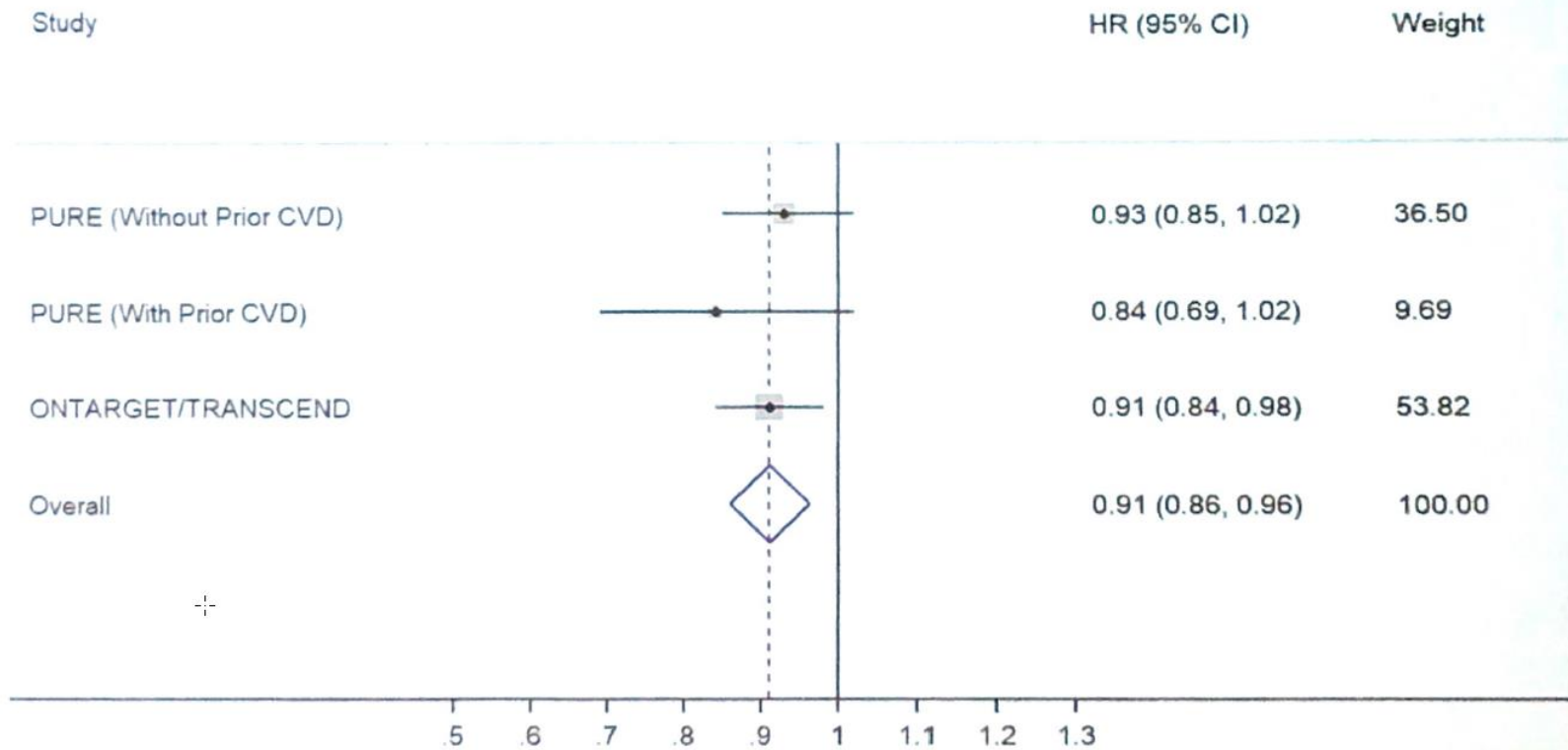
- **personal and cultural preferences**
- **degree of metabolic problems (insulin resistance)**
- **level of daily physical activity**

Unproc. red meat & poultry vs. outcome events (PURE)

	Unprocessed red meat & poultry intake, servings						P-trend
	≤ 1 per week	1 per week to <3 per week	3 per week to <1 per day	1 per day to <1.5 per day	1.5 per day to <2 per day	≥ 2 per day	
Med. intake	0.07	0.28	0.69	1.22	1.72	2.66	
N	18179	20008	30769	20473	14144	19044	
Total deaths	1.0	0.90 (0.83 to 0.99)	0.80 (0.72 to 0.88)	0.78 (0.69 to 0.89)	0.83 (0.72 to 0.95)	0.72 (0.62 to 0.83)	<0.0001
Major CVD	1.0	1.03 (0.92 to 1.15)	1.07 (0.96 to 1.20)	1.01 (0.88 to 1.15)	1.00 (0.86 to 1.16)	1.04 (0.89 to 1.21)	0.9523
MI	1.0	1.01 (0.86 to 1.18)	0.96 (0.80 to 1.15)	1.03 (0.84 to 1.27)	1.00 (0.79 to 1.26)	1.06 (0.84 to 1.34)	0.5950
Stroke	1.0	1.05 (0.90 to 1.22)	1.16 (0.99 to 1.35)	1.03 (0.86 to 1.23)	1.02 (0.83 to 1.26)	0.96 (0.78 to 1.19)	0.6241
CVD dth	1.0	0.93 (0.78 to 1.10)	0.91 (0.74 to 1.10)	0.76 (0.59 to 0.96)	0.82 (0.63 to 1.08)	0.81 (0.62 to 1.07)	0.0815
Non CVD death	1.0	0.90 (0.80 to 1.00)	0.78 (0.68 to 0.89)	0.79 (0.68 to 0.92)	0.85 (0.71 to 1.01)	0.72 (0.60 to 0.86)	0.0016

Adjusted for age, sex, center, WHR, energy, education, smoking, activity, urban/rural, diabetes, cancer, use of statin and BP meds

Association of Fish Intake with the Risk of Major CVD



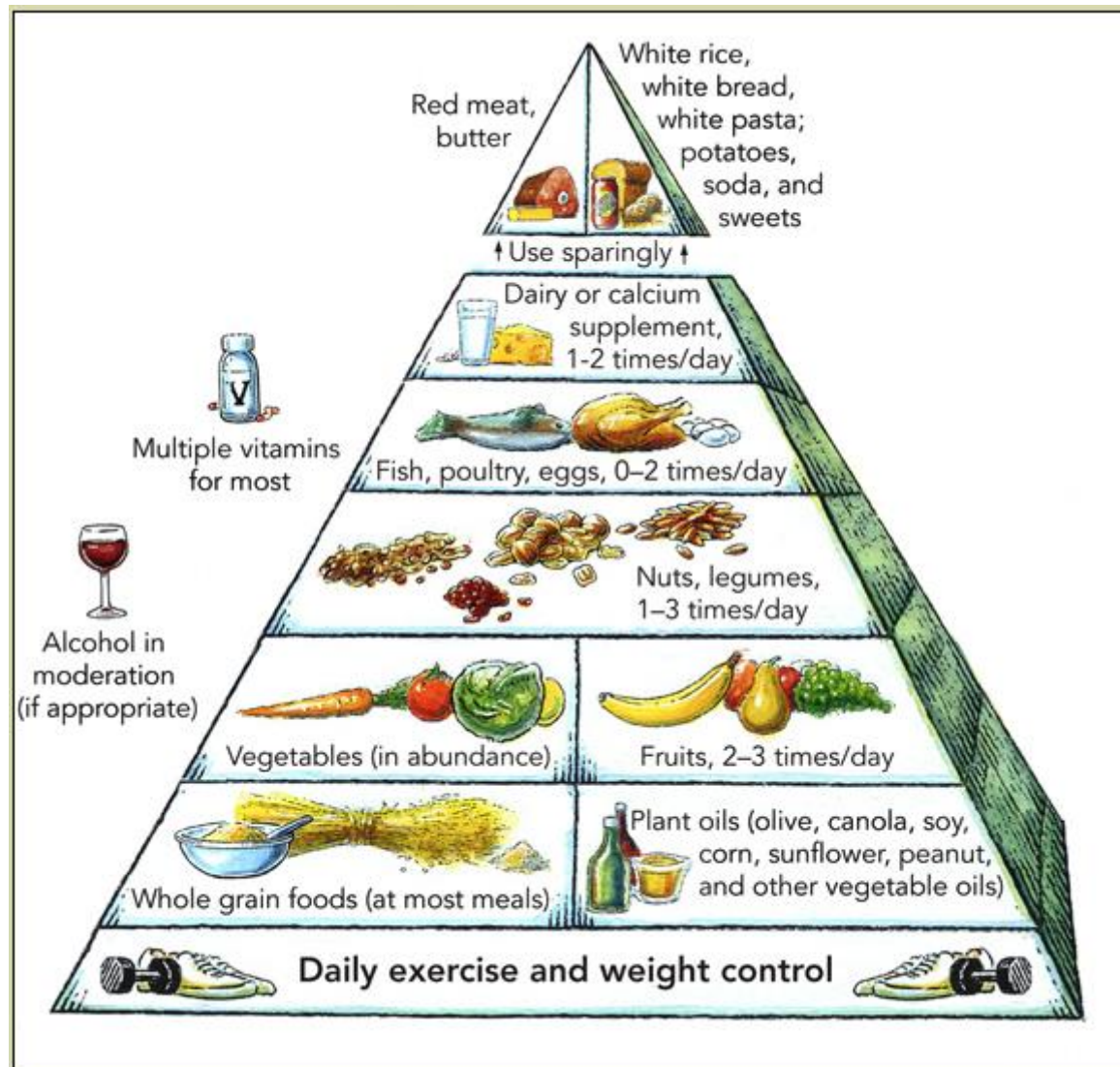
- Refined grains & diets with high GI associated with higher mortality and CVD. Whole grains neutral. Fruits and legumes associated with lower risk
- Higher meat, poultry & fish intake have modest protective associations with mortality and perhaps stroke
- +
- Previous publications (PURE and others) indicate that higher dairy (milk, cheese, butter and yoghurt) is associated with lower CVD, deaths (Lancet 2018), lower BP & diabetes (In review Lancet D & E).

- | |
|--|
| <ul style="list-style-type: none">• Saturated fatty acids to account for <10% of total energy intake, through replacement by polyunsaturated fatty acids. |
| <ul style="list-style-type: none">• Trans-unsaturated fatty acids: as little as possible, preferably no intake from processed food, and <1% of total energy intake from natural origin. |
| <ul style="list-style-type: none">• <5 g of salt per day. |
| <ul style="list-style-type: none">• 30–45 g of fibre per day, from wholegrain products, fruits, and vegetables. |
| <ul style="list-style-type: none">• 200 g of fruit per day (2–3 servings). |
| <ul style="list-style-type: none">• 200 g of vegetables per day (2–3 servings). |
| <ul style="list-style-type: none">• Fish at least twice a week, one of which to be oily fish. |
| <ul style="list-style-type: none">• Consumption of alcoholic beverages should be limited to two glasses per day (20 g/day of alcohol) for men and one glass per day (10 g/day of alcohol) for women. |

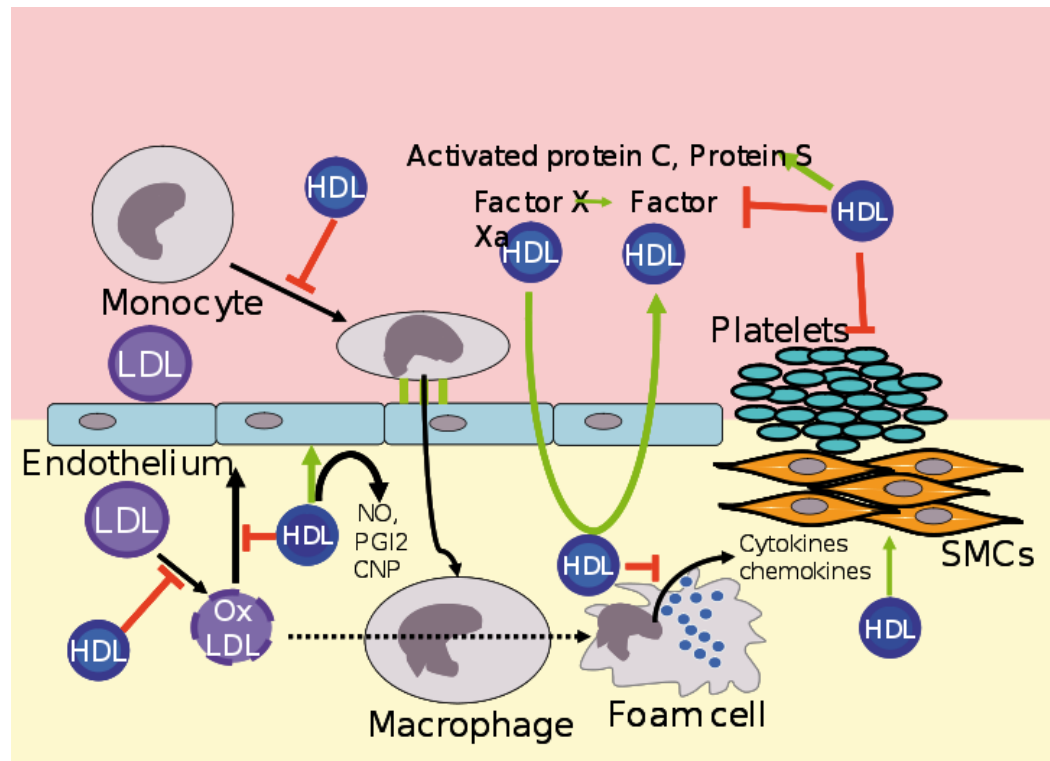
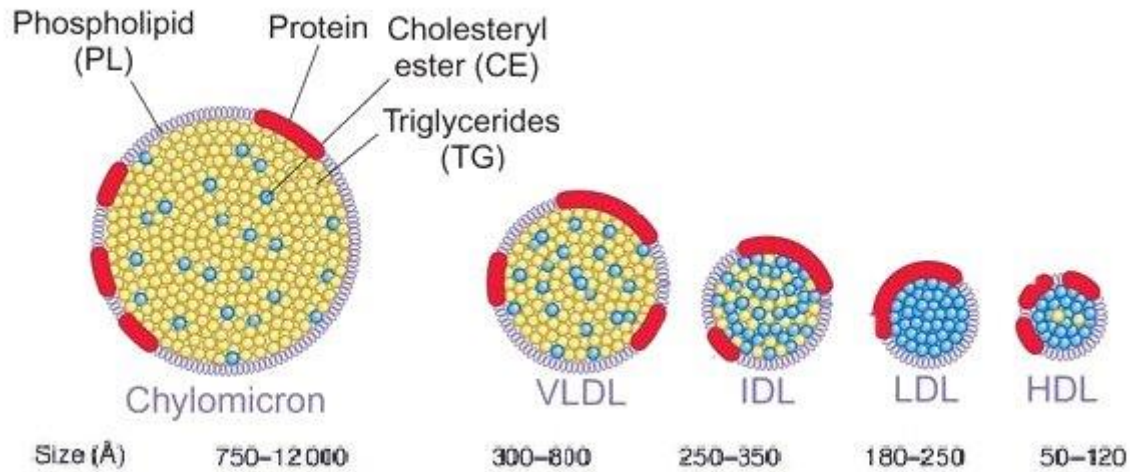
Lean, metabolically healthy and active



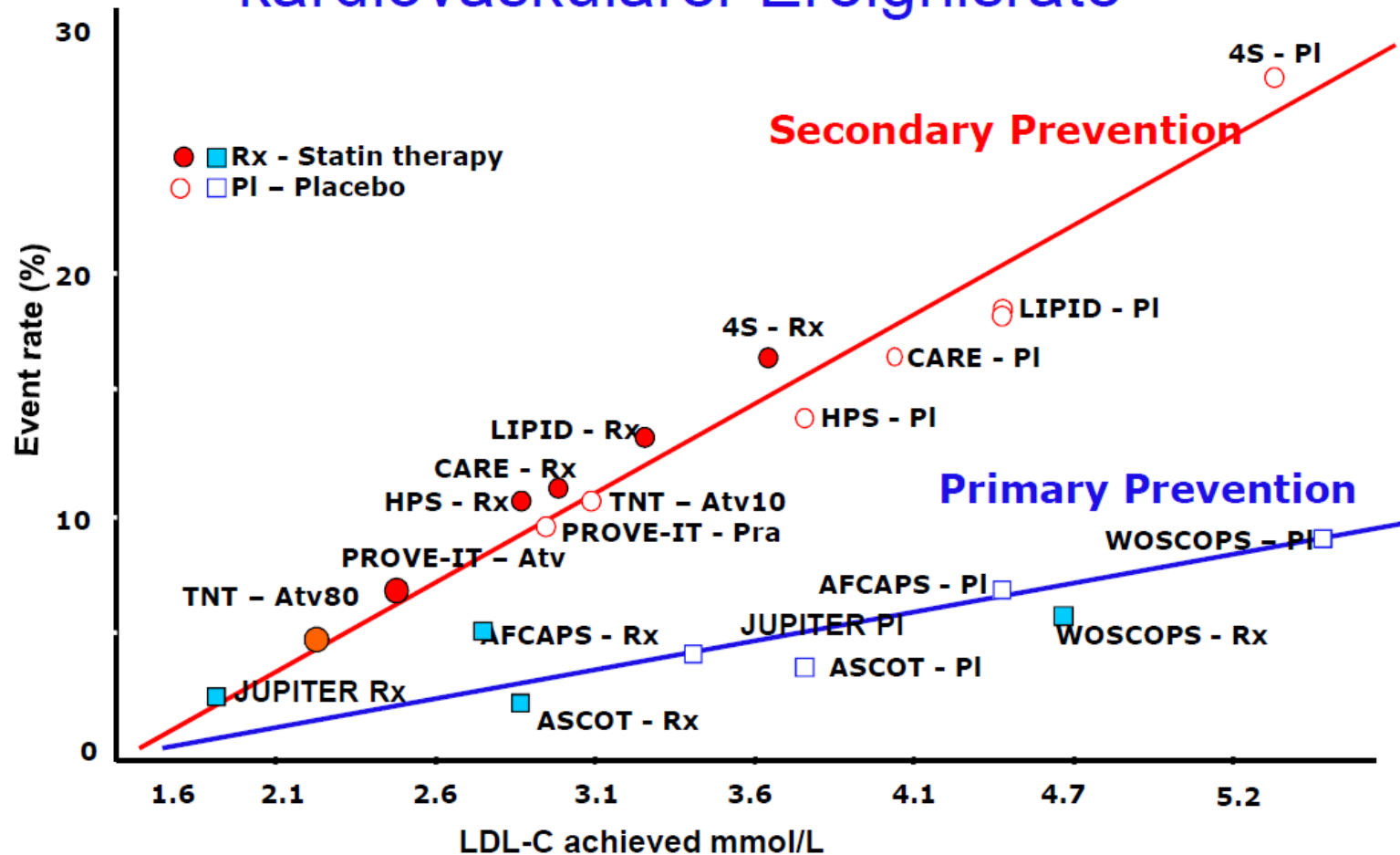
The New Carb Pyramid is weighted according to energy density, nutrient density, carbohydrate content, and degree of processing, by Wilcox/Lemmon/Mangione/et al. 2015



Cholesterin



State of the Art: Behandlung mit Statinen zeigt direkte Beziehung zwischen LDL-C Senkung und kardiovaskulärer Ereignisrate



Statin-Nebenwirkungen - Signifikanz und Definitionen



Myalgie

Myopathie/Myositis

Rhabdomyolyse

- Häufig (auch unter Placebo)!
- 1 - 25%

- Selten (1 : 10'000)
- CK > 3-10 x Normwert

Fluvastatin (Lescol®)

(OR 0.33)

Pitavastatin (Livazo®)

Pravastatin

(Selipran®)

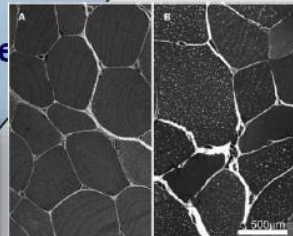
Atorvastatin (Sortis®)

(OR 1.28)

Simvastatin (Zocor®)

(OR 1.78)

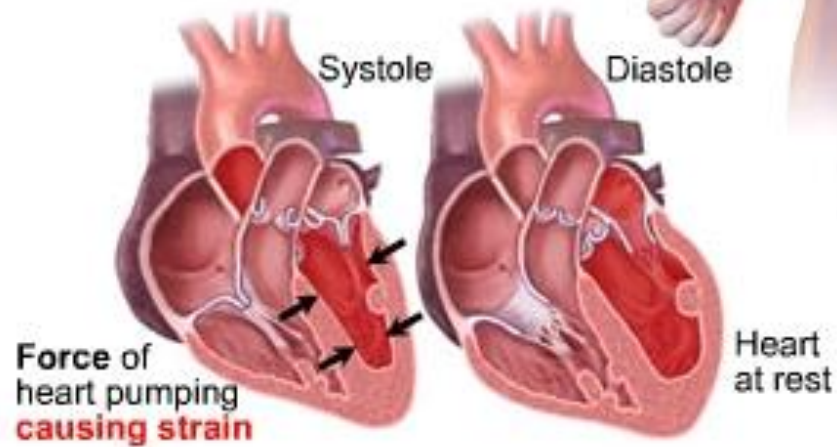
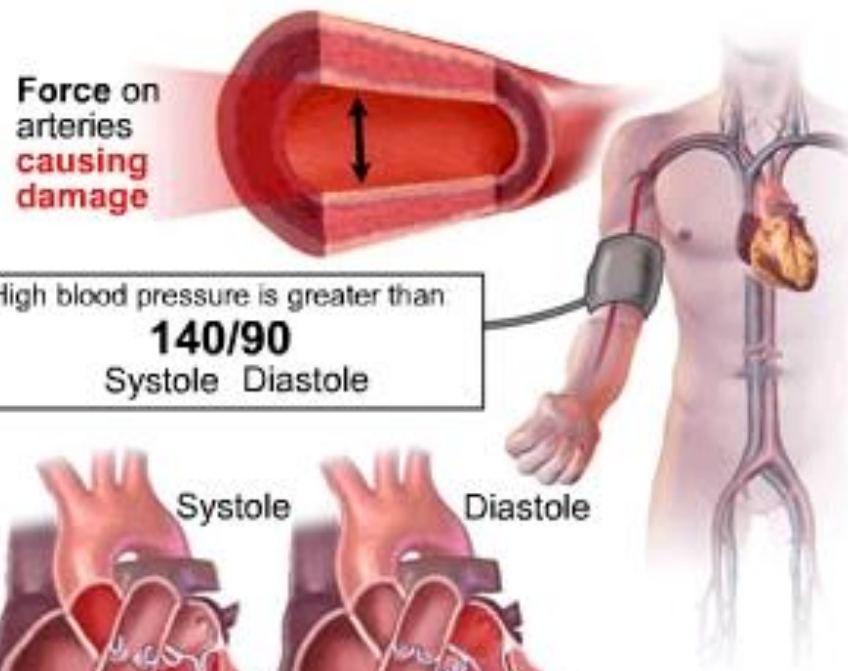
Rosuvastatin (Crestor®)



Draeger A et al., Schweiz
Med Forum 2010;10(4):72

- Selten (0.1 : 1'000 pro 5 Jahre)
- 1.5 Todesfälle pro 1 Mio

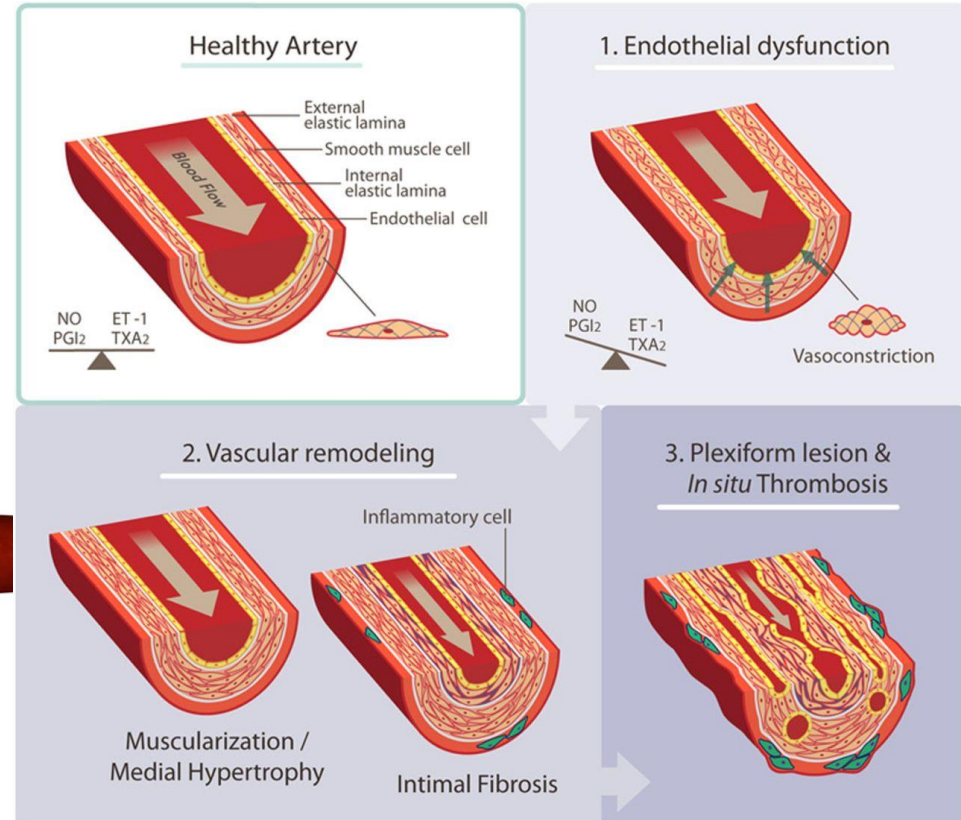
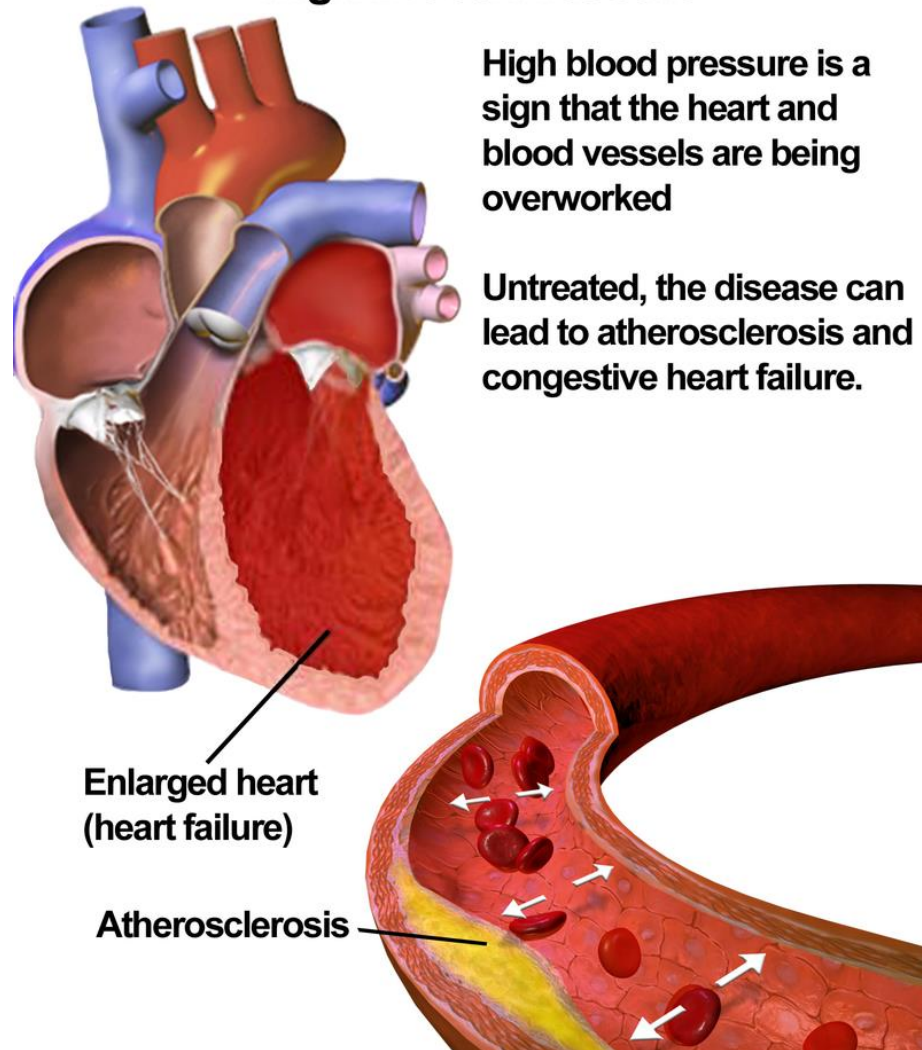
Blutdruck



High Blood Pressure

High blood pressure is a sign that the heart and blood vessels are being overworked

Untreated, the disease can lead to atherosclerosis and congestive heart failure.



Main complications of persistent
High blood pressure

Brain:

- Cerebrovascular accident (*strokes*)
- Hypertensive encephalopathy:
 - *confusion*
 - *headache*
 - *convulsion*

Retina of eye:

- Hypertensive retinopathy

Blood:

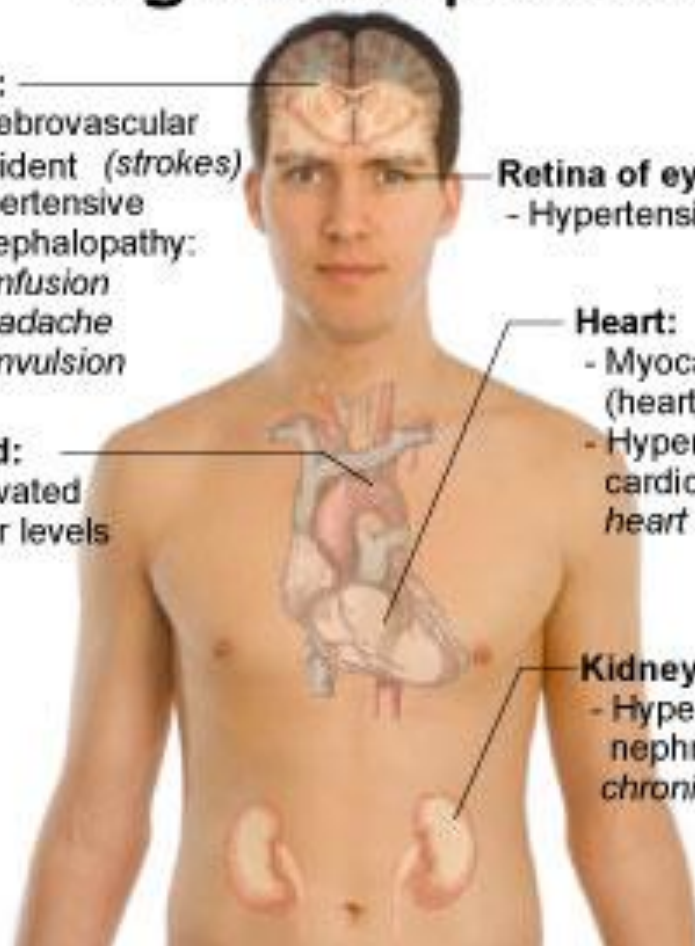
- Elevated sugar levels

Heart:

- Myocardial infarction (*heart attack*)
- Hypertensive cardiomyopathy:
 - heart failure*

Kidneys:

- Hypertensive nephropathy:
 - chronic renal failure*



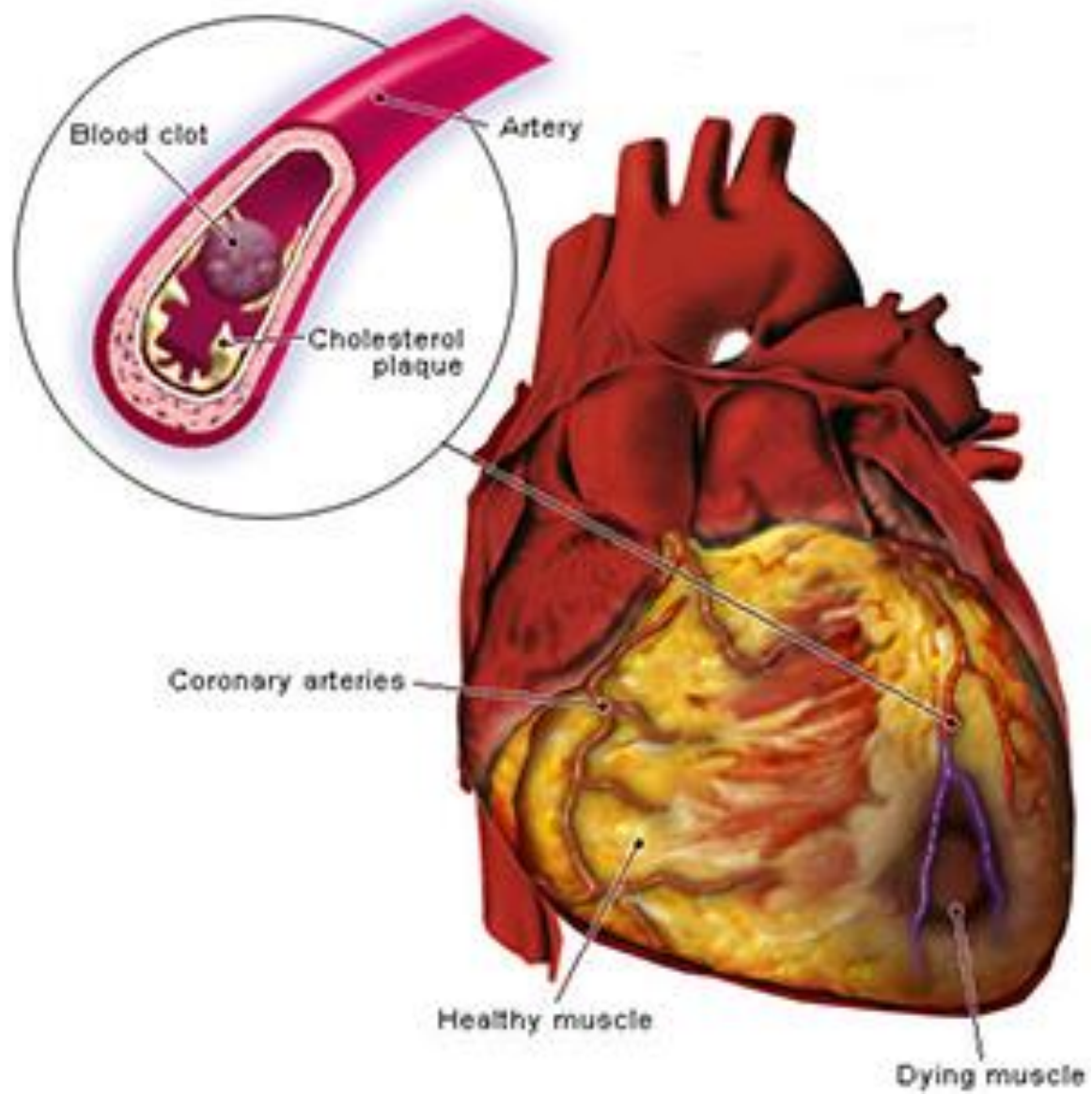
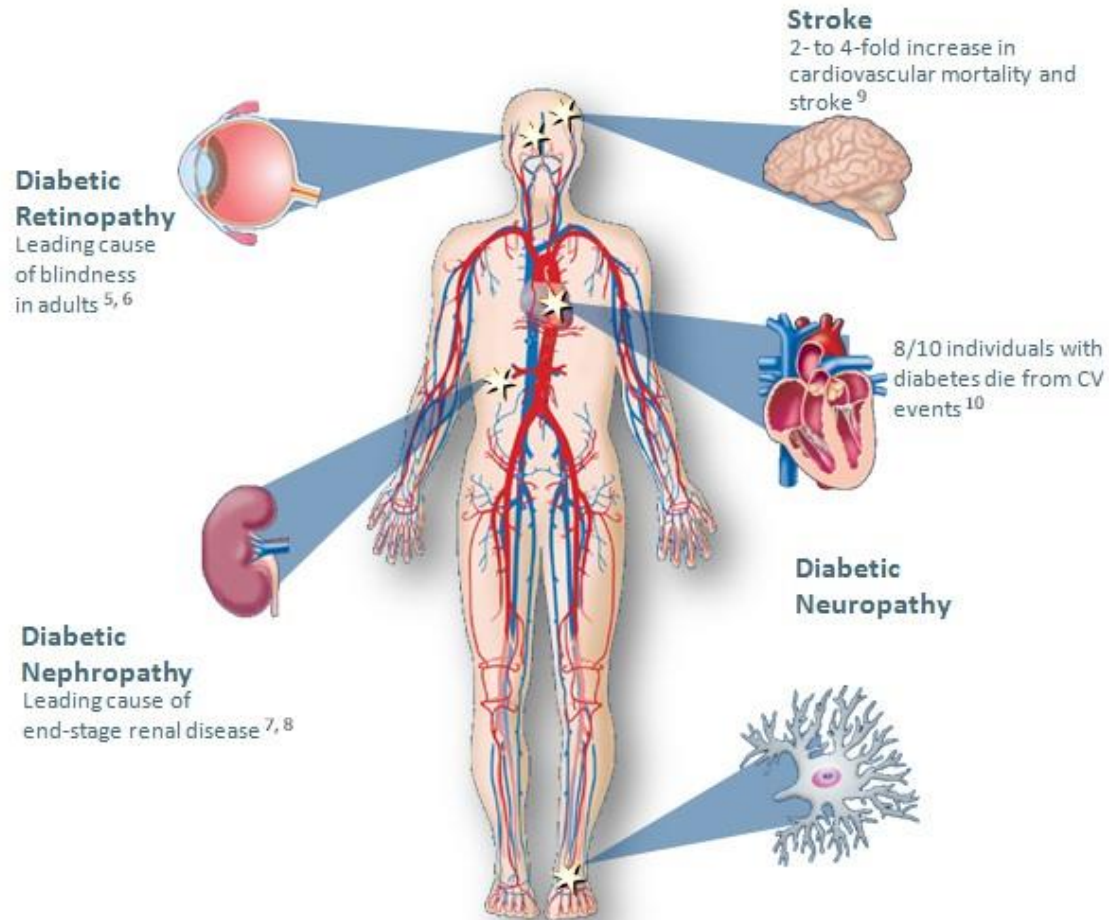


Table 14 Blood pressure thresholds for definition of hypertension with different types of blood pressure measurement

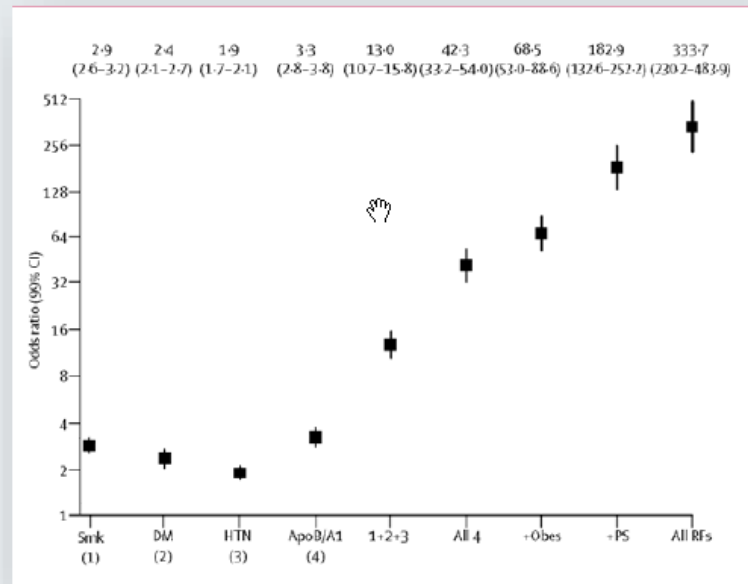
	SBP (mmHg)	DBP (mmHg)
Office or clinic	140	90
24-hour	125–130	80
Day	130–135	85
Night	120	70
Home	130–135	85

BP = blood pressure; DPB = diastolic blood pressure; SBP = systolic blood pressure.

Diabetes



Diabetes mellitus – Medikamente und sonstige Substanzen



Yusuf S., et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (INTERHEART study): case-control study. *Lancet* 2004;364:937-52

- Lipidsenkung
 - Statine generell empfohlen ab 40 Jahren (Simvastatin? PCSK9-Inh.?)
- Blutdrucksenkung
 - ACE-Hemmer im Vordergrund
 - Zielwerte: <140/85mmHg bzw. 150/90mmHg)
- Lifestyle Management

Verdoppelung des cv Risikos bei DM

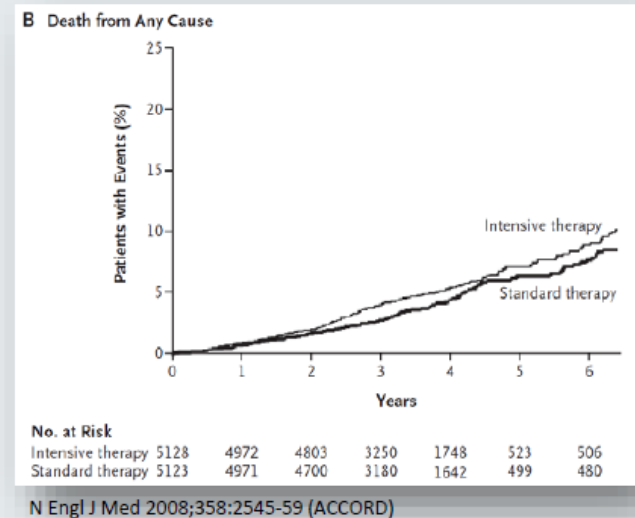
- Multifaktorieller Ansatz der Prävention:

- Glucose-Kontrolle

first-line: Metformin

(Empagliflozin 38% Reduktion cv Tod: Nur in Sekundärprophylaxe)

cave intensive BZ-Senkung (Ältere Patienten, KHK)



Recommendations on diabetes mellitus

Recommendations	Class ^a	Level ^b	GRADE	Ref ^c
The target HbA _{1c} for the prevention of CVD in diabetes of <7.0% (<53 mmol/mol) is recommended.	I	A	Strong	434, 435
Statins are recommended to reduce cardiovascular risk in diabetes.	I	A	Strong	166, 436
Hypoglycaemia and excessive weight gain must be avoided and individual approaches (both targets and drug choices) may be necessary in patients with complex disease.	I	B	Strong	435, 437, 438
Metformin should be used as first-line therapy if tolerated and not contraindicated	IIa	B	Strong	439
Further reductions in HbA _{1c} to a target of <6.5% (<48 mmol/mol) (the lowest possible safely reached HbA _{1c}) may be useful at diagnosis. For patients with a long duration of diabetes this target may reduce risk of microvascular outcomes.	IIb	B	Weak	435
BP targets in diabetes are recommend to be <140/80 mmHg.	I	A	Strong	440, 441
Target LDL cholesterol is <2.5 mmol/L, for patients without atherosclerotic disease total cholesterol may be <4.5 mmol/L, with a lower LDL cholesterol target of <1.8 mmol/L (using higher doses of statins) for diabetic patients at very high CVD risk.	IIb	B	Weak	442
Antiplatelet therapy with aspirin is not recommended for people with diabetes who do not have clinical evidence of atherosclerotic disease.	III	A	Strong	443

ACS = acute coronary syndrome; BP = blood pressure; CKD = chronic kidney disease; CVD = cardiovascular disease; HbA_{1c} = glycated haemoglobin; LDL = low-density lipoprotein.

^aClass of recommendation.

^bLevel of evidence.

^cReferences.

Globale Unterschiede (INTERHEART Studie)

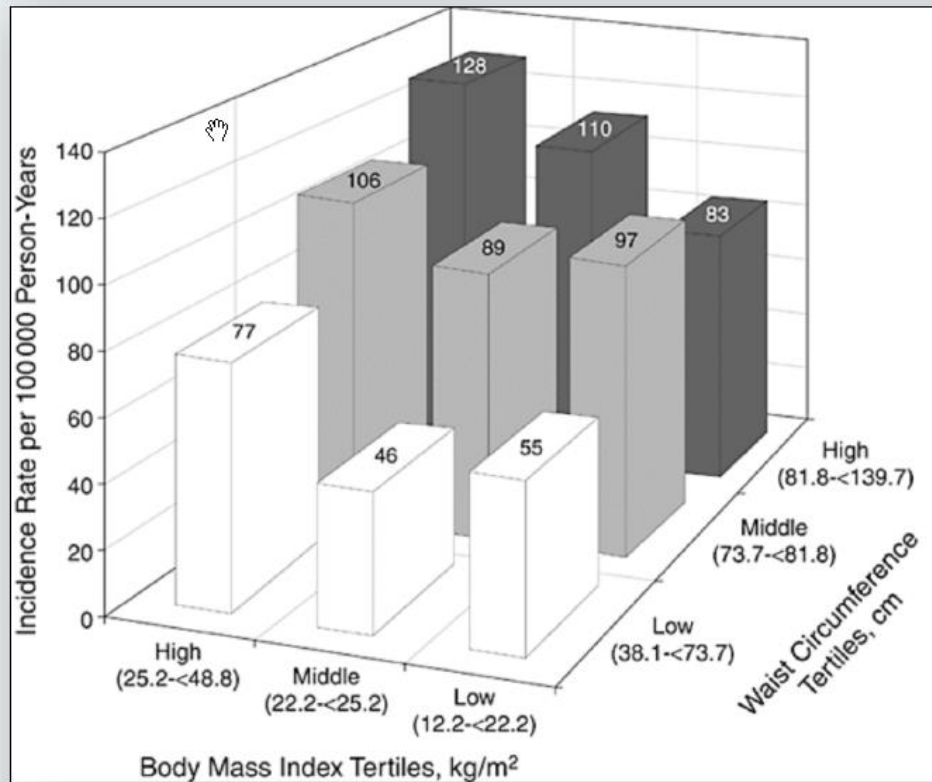


Yusuf S., et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004; 364: 937–52

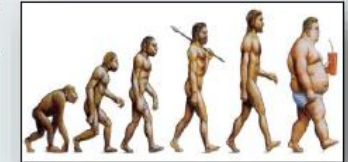
Apfelform



Der Bauchumfang als unabhängiger (und bedeutender) Risikofaktor



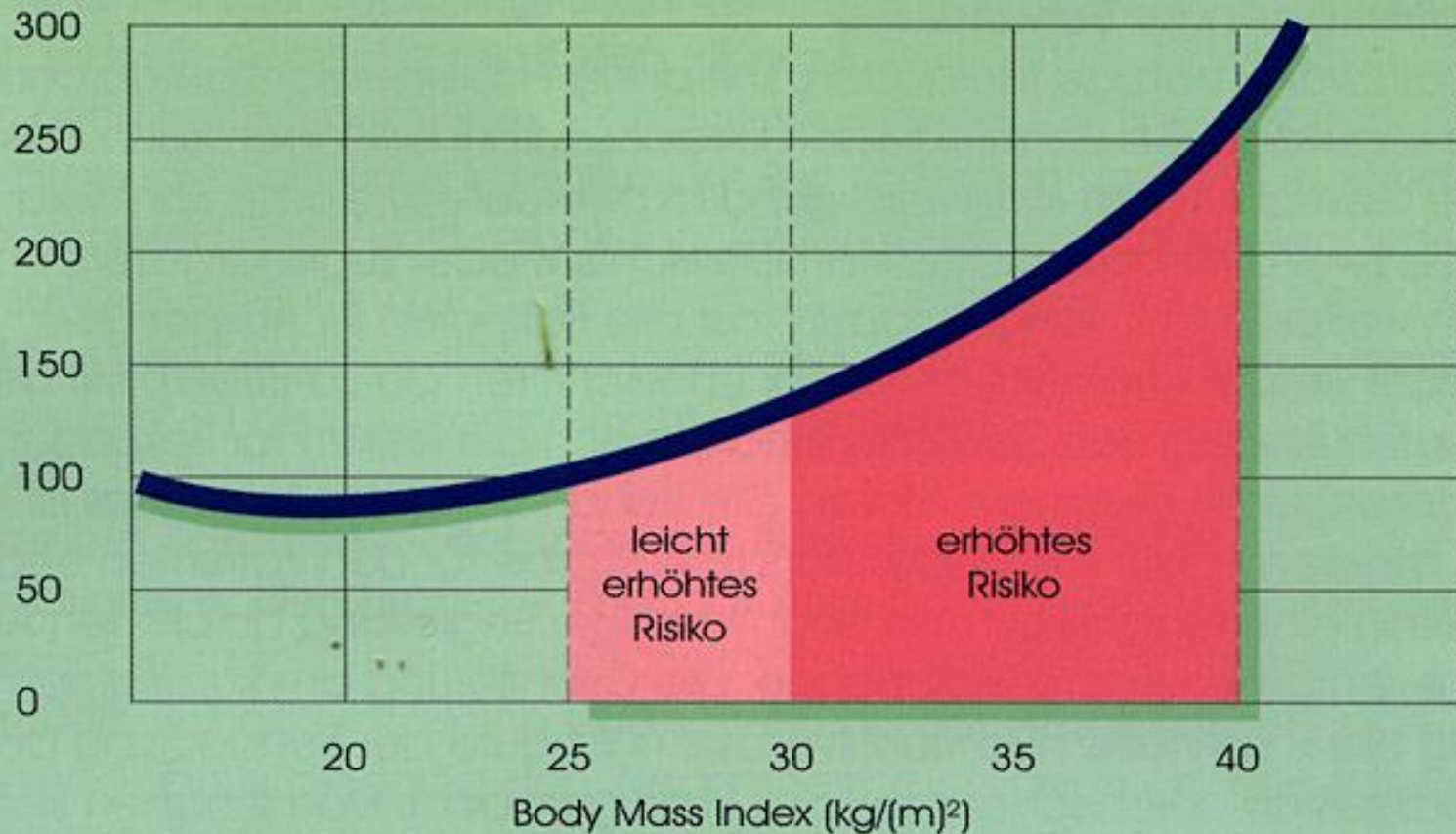
Rexrode KM, et al.; Abdominal adiposity and coronary heart disease in women. JAMA. 1998 Dec 2;280(21):1843-8.



Männer <94-102cm
Frauen <80-88cm

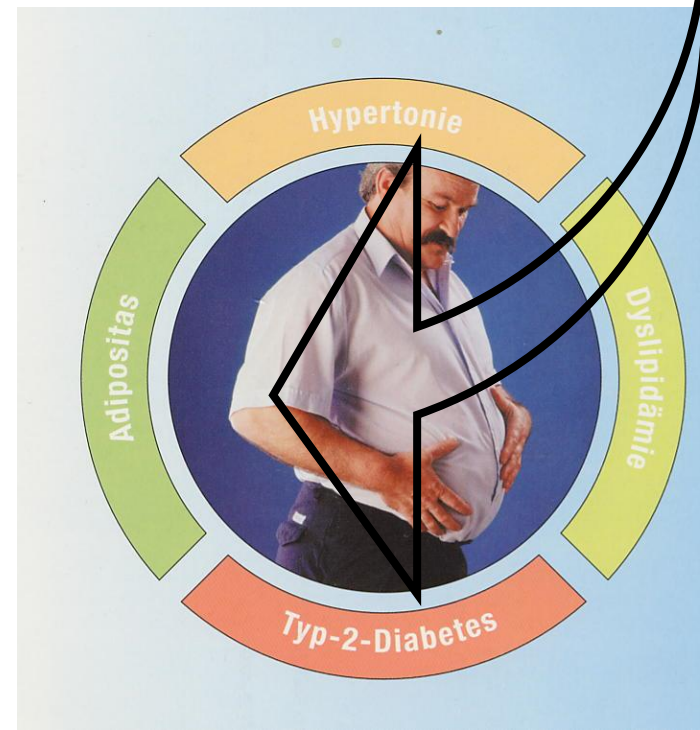
Die Korrelation zwischen Body Mass Index und Mortalität

Mortalität



Komplikationen der Adipositas

- Hypertonie
- Diabetes mellitus Typ II
- Dyslipidämie
- Unabhängiger kardiovaskulärer Risikofaktor (Apfelform!)
- Arthrose
- Schlafapnoe-Syndrom
- **Metabolisches Syndrom**



Gewichtsreduktion von 10 kg...

Risikoreduktion:

- Mortalität: 20%
- Diabetes: 30%
- Krebs: 40%

Risikofaktoren:

- BD systol. : -10 mmHg
- BD diastol.: -20 mmHg
- Blutzucker: -50%
- T-Cholesterin: -10%
- LDL-Cholesterin: -15%
- HDL-Cholesterin: +8%
- Triglyzeride: -30%

Körperliche Aktivität



Recommendations regarding physical activity

Recommendations	Class ^a	Level ^b	GRADE	Ref ^c
Healthy adults of all ages should spend 2.5–5 h a week on physical activity or aerobic exercise training of at least moderate intensity, or 1–2.5 h a week on vigorous intense exercise. Sedentary subjects should be strongly encouraged to start light-intensity exercise programmes.	I	A	Strong	305–308
Physical activity/aerobic exercise training should be performed in multiple bouts each lasting ≥10 min and evenly spread throughout the week, i.e. on 4–5 days a week.	IIa	A	Strong	305–308
Patients with previous acute myocardial infarction, CABG, PCI, stable angina pectoris, or stable chronic heart failure should undergo moderate-to-vigorous intensity aerobic exercise training ≥3 times a week and 30 min per session. Sedentary patients should be strongly encouraged to start light-intensity exercise programmes after adequate exercise-related risk stratification.	I	A	Strong	309, 310

CABG = coronary artery bypass graft; PCI = percutaneous coronary intervention.

^aClass of recommendation.

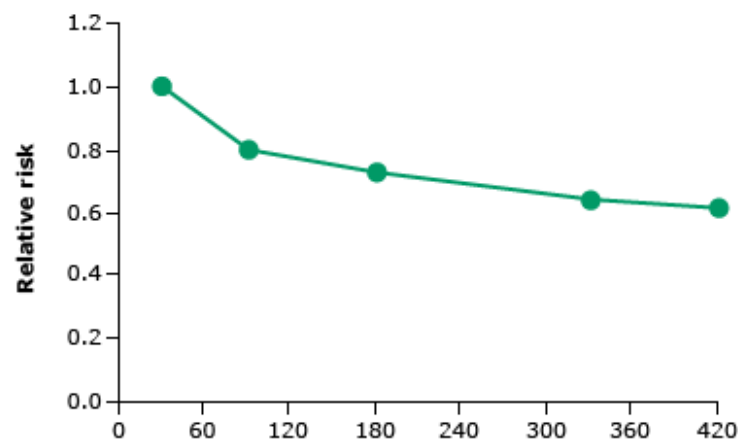
^bLevel of evidence.

^cReferences.

Benefits of regular physical activity

Reduces the risk of dying prematurely
Reduces the risk of dying from heart disease
Reduces the risk of stroke
Reduces the risk of developing diabetes
Reduces the risk of developing high blood pressure
Helps reduce blood pressure in people who already have high blood pressure
Reduces the risk of developing colon cancer
Reduces feelings of depression and anxiety
Helps control weight
Helps build and maintain healthy bones, muscles, and joints
Helps older adults become stronger and better able to move about without falling
Promotes psychological wellbeing

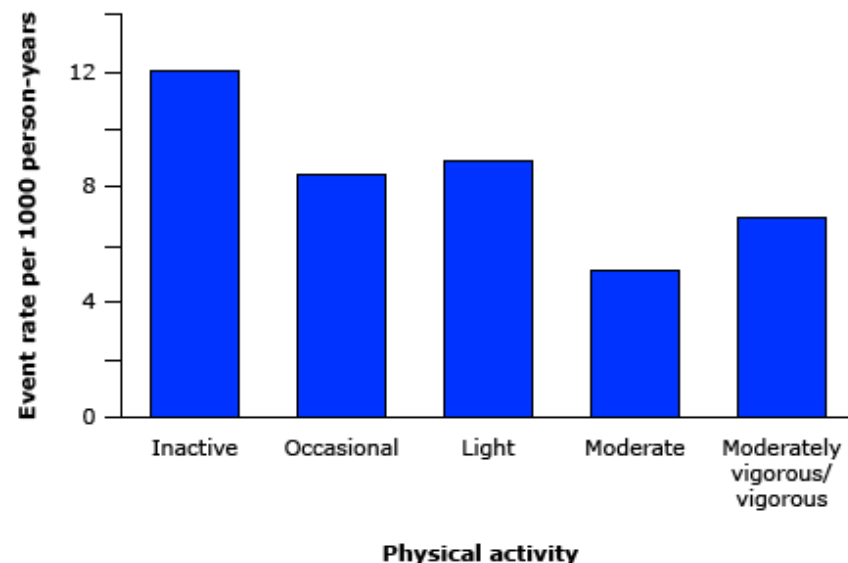
The risk of dying prematurely declines as people become physically active



Minutes per week of moderate- or vigorous-intensity physical activity

Reproduced from: *Physical Activity Guidelines for Americans*. US Department of Health and Human Services. Available at <http://www.health.gov/paguidelines/pdf/paguide.pdf>.

Beneficial effects of any physical activity on coronary heart disease



Coronary events are less frequent among those who exercise. In a study of 5159 men, aged 40 to 49 years, followed for an average of almost 19 years, the age-adjusted coronary heart disease event rate per 1000 person-years is lower in those who perform any physical activity compared with inactive subjects.