Am nunmehr wieder ersten Heimatabend am 14. September 2021 - nach schmerzlicher Lockdown-Pause – freuten sich ca. 300 Jonges über einen alle angehenden Vortrag über Gesunderhaltung: „Warum Vorsorge der Gesundheit gegenüber Reparatur der Krankheit wichtig und notwendig ist“.

Dazu referierte aus professionellem Munde der Jong Uwe, Prof. Dr. med. Nixdorff, seines Zeichens Internist, Kardiologe und Sportmediziner, der seit > 10 Jahren in Düsseldorf ein Präventionszentrum betreibt. In der letzten August-Ausgabe „Das Tor“ setzte er sich bereits dafür ein, dass es „Irgendwann „klick“ machen sollte“. Wichtig waren wissenschaftlich fundierte Fakten, keine Eventualitäten; in der Medizin Evidenz-basiert genannt und auch als Leitlinien international publiziert.

So konnte in vieler Hinsicht Klarheit geschafft werden, was zur Vermeidung von Ereignissen wie Herzinfarkt und Schlaganfall zu tun ist und besser: Als Paradigmenwechsel Gesundheit bewahrt werden kann. Hauptsterbeursache bleibt der Herzinfarkt, erst gefolgt von Krebserkrankungen. Wichtig war Uwe die Erklärung, dass der Herzinfarkt oft wie aus heiterem Himmel kommt, da die Gefäßveränderungen zwar da sind, aber lange Zeit gar nicht zu Durchblutungsstörungen führen („vulnerable Plaque“).
Oft ist es ohne irgendwelche Prodromi dann so, dass die Plaque einreißt und durch eine Art innere Verletzung sich ein Gerinnsel bildet, dass das Gefäß verschließt. Erfassung ALLER Risikofaktoren (Blutdruck, Cholesterin, Diabetes; aber auch Übergewicht, fehlende Bewegung oder Rauchen) in sog. Scores ist Basis eines Check-Up-Programms, gefolgt von Früherkennung durch Bildgebung. Viele beeindruckende, plastisch nachvollziehbare Bilder wurden gezeigt. Abschließend wurden alle Lebensstilsäulen: Bewegung, Ernährung und Entspannung portraitiert, auch hier besteht Evidenz ohne Existenzberechtigung für irgendwelche einseitigen oder gar ideologischen „Gesundheitsapostel“.

Zum Schluss und zur geselligen Abrundung wurden Daten präsentiert, dass ein moderater Alkoholkonsum zum Essen durchaus seine gefäßprotektive Wirkung nicht verfehlt.

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EUROPEAN PREVENTION CENTER

# "Warum Vorsorge der Gesundheit gegenüber Reparatur der Krankheit wichtig und notwendig ist"

## *Heimatabend der Jonges*

### *Henkelsaal am 14.09.2021*

düsseldorfer jonges


Prof. Dr. med. Uwe Nixdorff, F.E.S.C.
Internist, Kardiologe, Sportmediziner

EPC GmbH - European Prevention Center, Düsseldorf / Berlin, www.epccheckup.de
Hanako GmbH, München, www.hanako-health.com
ECPM GmbH – European Center of Personalized Medicine (ECPM), Düsseldorf, www.ecpm.center
Universitätsklinikum Erlangen-Nürnberg

das tor

düsseldorfer jonges

Monatszeitschrift der Düsseldorfer Jonges

08 · 2021 · 87. Jahrgang

# Irgendwann soll es „klick“ machen

## Professor Uwe Nixdorff beschreibt den Weg zu einem langen Leben

### Prof. Dr. med. Uwe Nixdorff

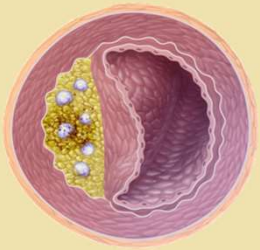
- Prof. Dr. med. Uwe Nixdorff ist 63 Jahre alt, fühlt sich aber wie 43. Zusammen mit seiner Frau lebt der im Taunus geborene Mediziner in Bilk. Das Paar hat zwei Kinder.
- Die ärztliche Ausbildung zum Internisten, Kardiologen und Sportmediziner hat ihn nach dem Studium in Frankfurt unter anderem nach Johannesburg, ins Bundeswehr-Krankenhaus Gießen, ins Deutsche Herzzentrum München in die Universitätsklink Mainz und nach Chicago geführt.
- Als außerplanmäßiger Professor lehrt er an der Universität Erlangen-Nürnberg.
- 2005 hat er das „European Prevention Center“ gegründet. Im Düsseldorfer Medical Center führt er auch eine kardiologische Privatpraxis.
- Nixdorff ist Rechtsritter der Johanniter-Ordens.
- Seit 2019 ist der Düsseldorfer Jong und Mitglied der Tischgemeinschaft „Kinn Ziet“.
- „Mein Hobby ist mein Beruf“, sagt er.

# Von der Prävention zur Intervention – von der Intervention zur Prävention

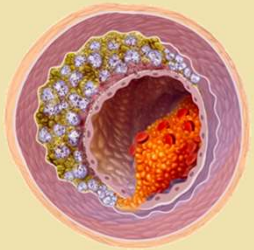
In der kardiologischen Praxis Nixdorff & Vester wird ein besonderes Augenmerk auf den präventiven Ansatz gelegt. Der Baas geht mit gutem Beispiel voran und stattete den Professoren einen Besuch ab.

© Foto: Johannes Geinke

v.l.: Prof. Dr. med. Uwe Nixdorff, Wolfgang Rolshoven, Prof. Dr. med. Ernst G. Vester



# Vortragsinhalt



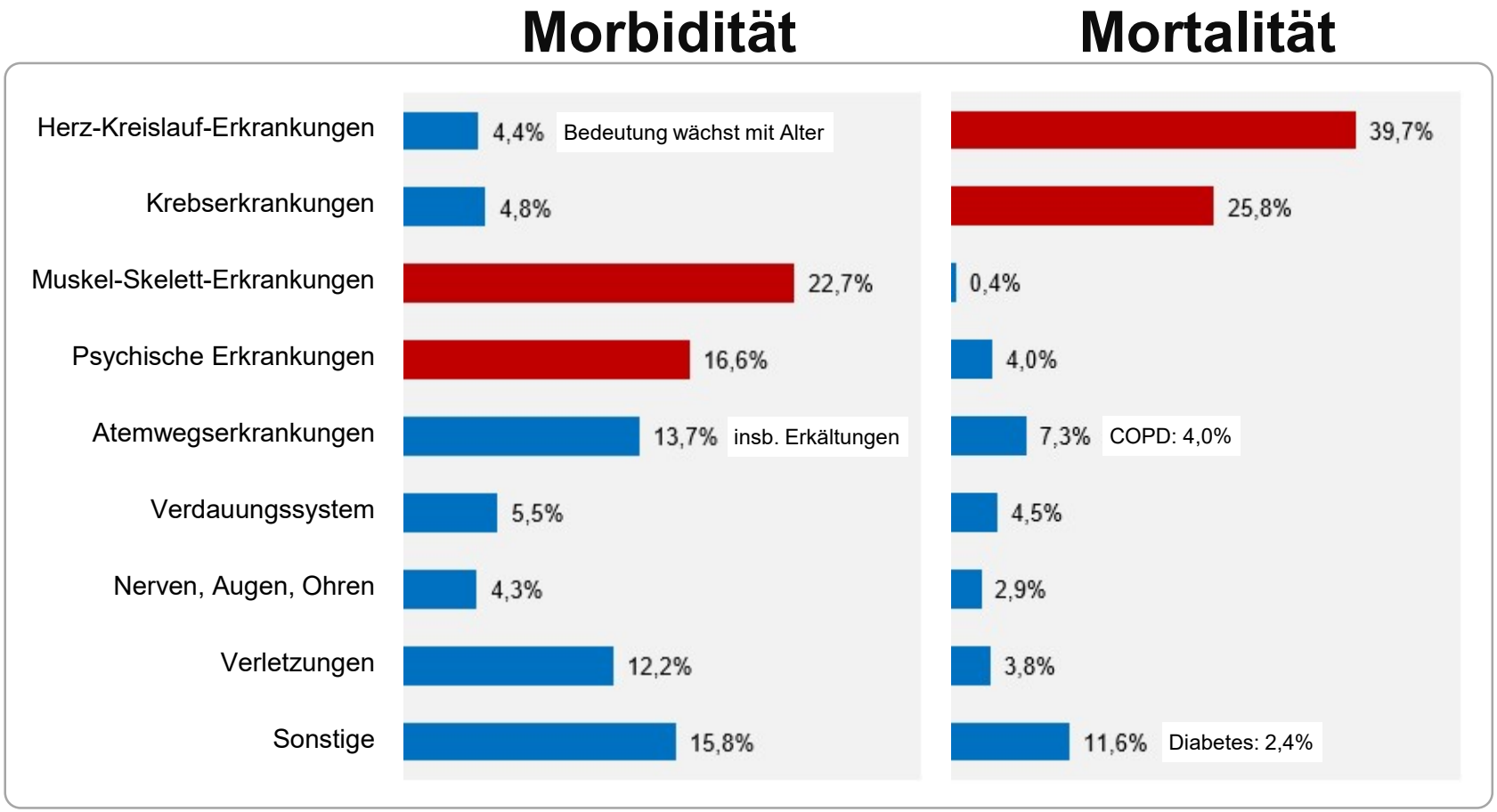
- Epidemiologie
- Pathophysiologie
- Risikofaktoren
- Früherkennung
- Lebensstil
- Pharmakotherapie
- Zusammenfassung

# Paradigmenwechsel Chronischer Erkrankungen


**Causes mentioned:** Lack of physical activity • Poor nutrition • Tabacco use • Excessive alkohol use

Source: Global Burden of Diseases (GBD)

# Krankheitslast: Morbidität und Mortalität



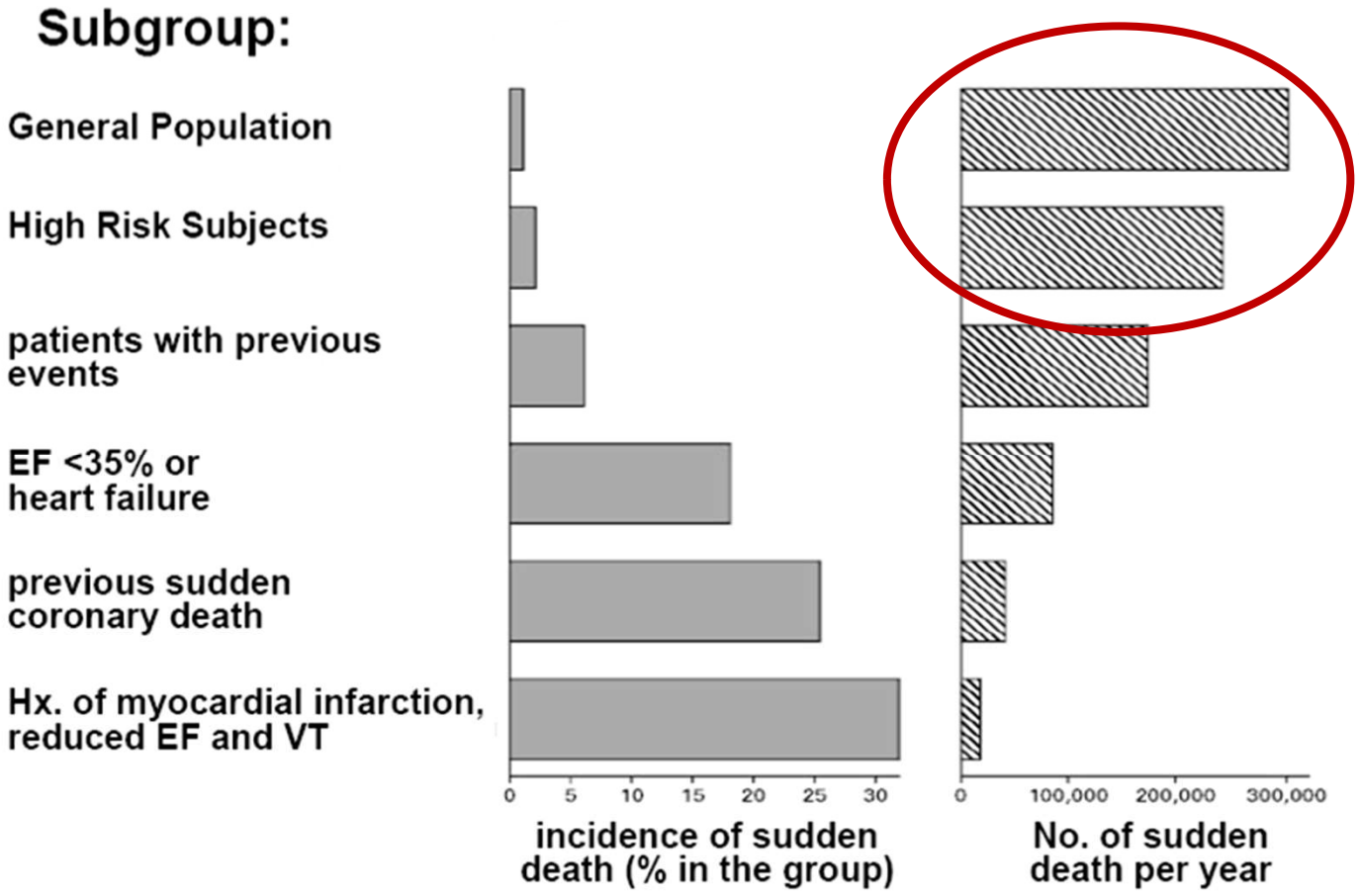

AU-Tage
gemäß DAK-Gesundheitsreport, 2015

Todesfälle
gemäß Statistisches Bundesamt, 2013

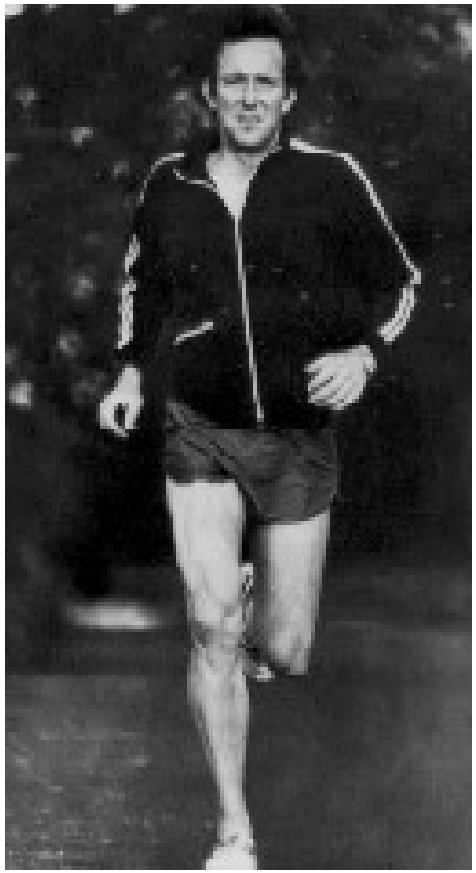
# Kommt der Herzinfarkt aus heiterem Himmel?

# Das Epidemiologische Paradox

***Huikuri, et al. N Engl J Med 2001; 345:1473-82***

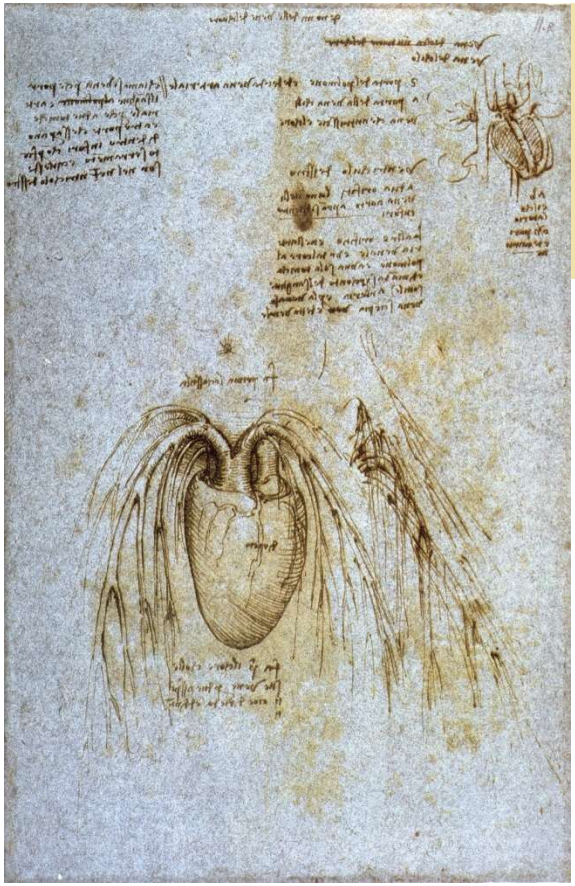


# Jim Fixx erlag mit 56 Jahren einem akuten Myokardinfarkt



- **Ambitionierter Marathonläufer der 60er**
- **Hat den Stadtmarathon entwickelt**
- ***„The complete book of running“***

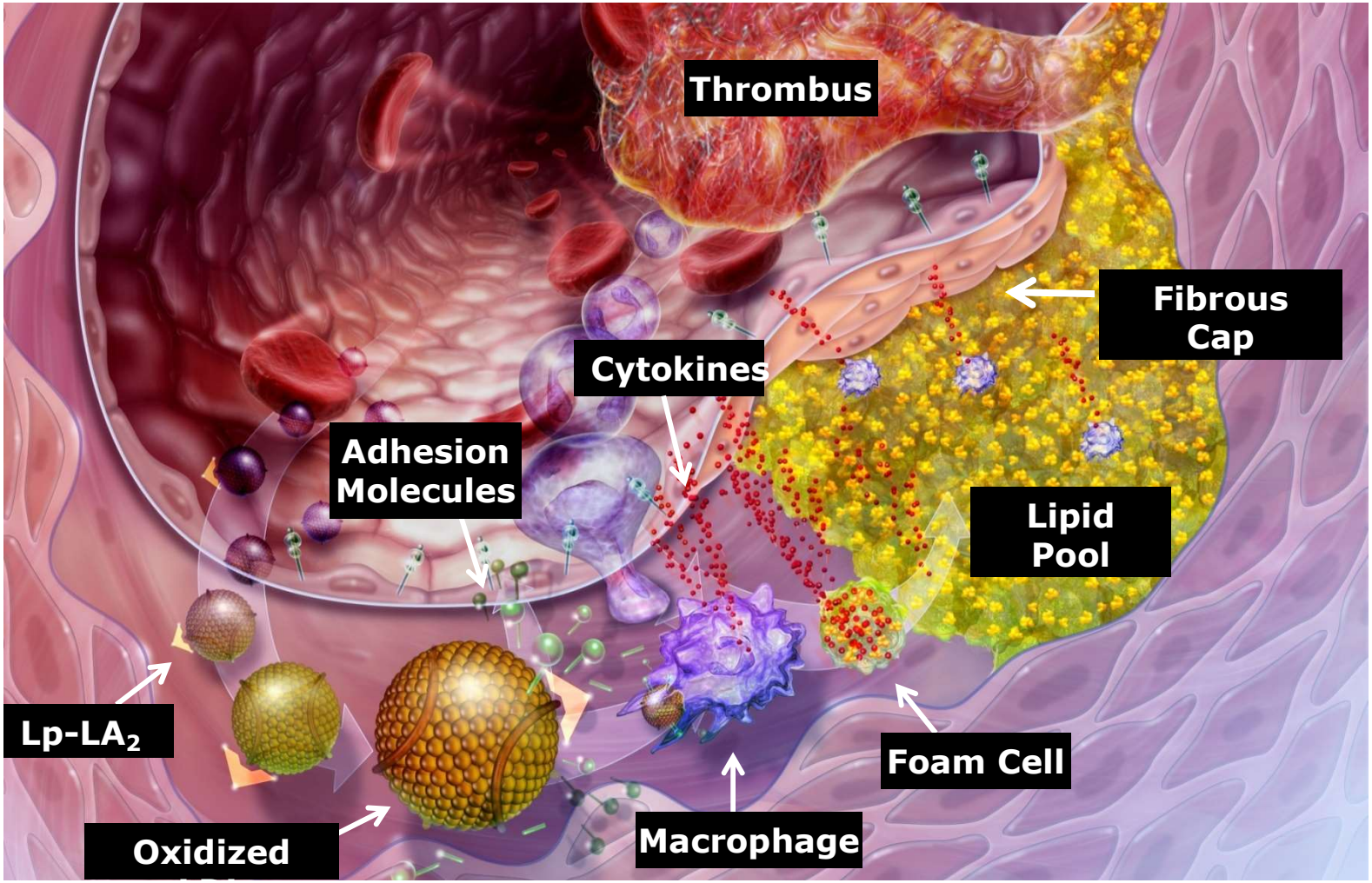
⇒ ***Ironically his arteries were plugged with too much cholesterol.***



**Leonardo da Vinci**
**1513**

**Feder in brauner Tusche**

# Formation der Vulnerablen Plaque




*Lerman A et al. Am J Cardiol 2008; 101[suppl]:11F-22F.*

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# Timeline of Atherosclerosis

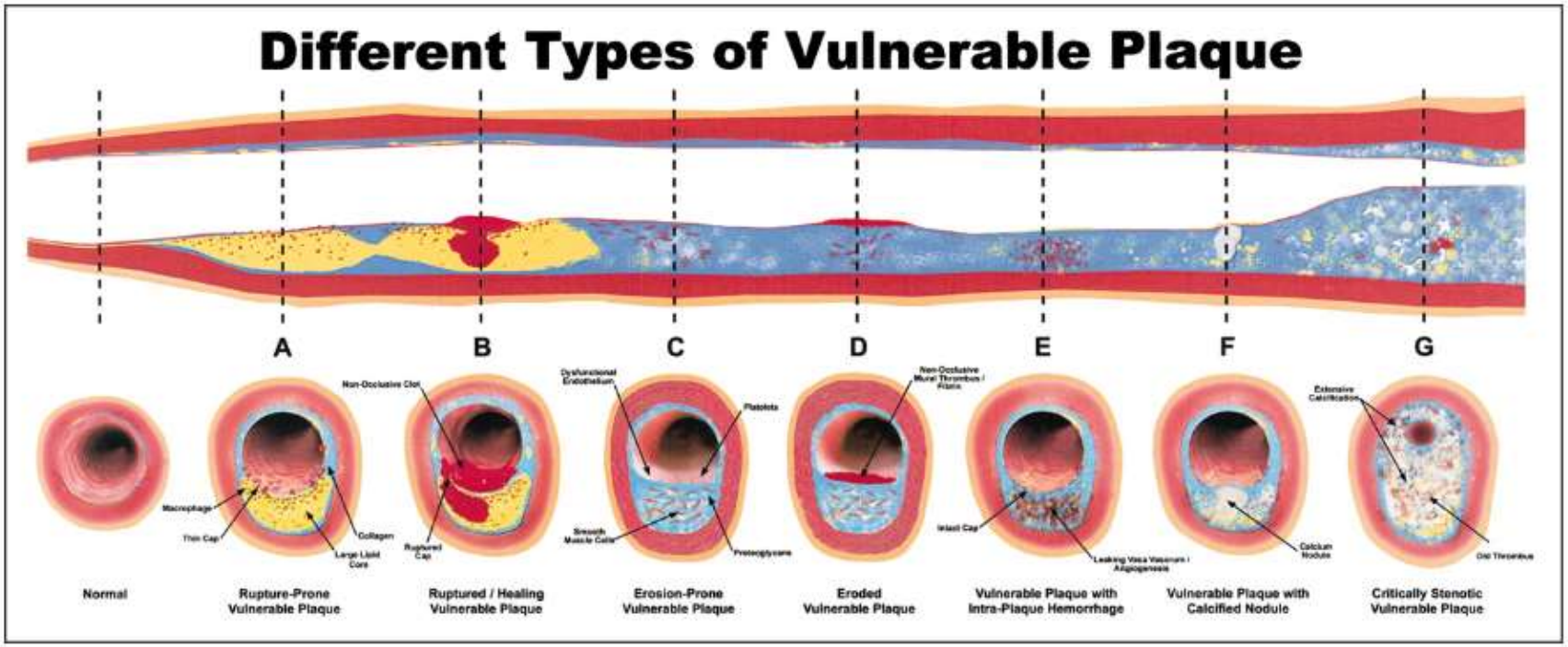



**Figure 2.** Different types of vulnerable plaque as underlying cause of acute coronary events (ACS) and sudden cardiac death (SCD). A, Rupture-prone plaque with large lipid core and thin fibrous cap infiltrated by macrophages. B, Ruptured plaque with subocclusive thrombus and early organization. C, Erosion-prone plaque with proteoglycan matrix in a smooth muscle cell-rich plaque. D, Eroded plaque with subocclusive thrombus. E, Intraplaque hemorrhage secondary to leaking vasa vasorum. F, Calcific nodule protruding into the vessel lumen. G, Chronically stenotic plaque with severe calcification, old thrombus, and eccentric lumen.

***Naghavi M, et al. Circulation 2003;108:1664-72***

ESC
European Society of Cardiology
European Heart Journal (2021) 42, 3227–3337
doi:10.1093/eurheartj/ehab484

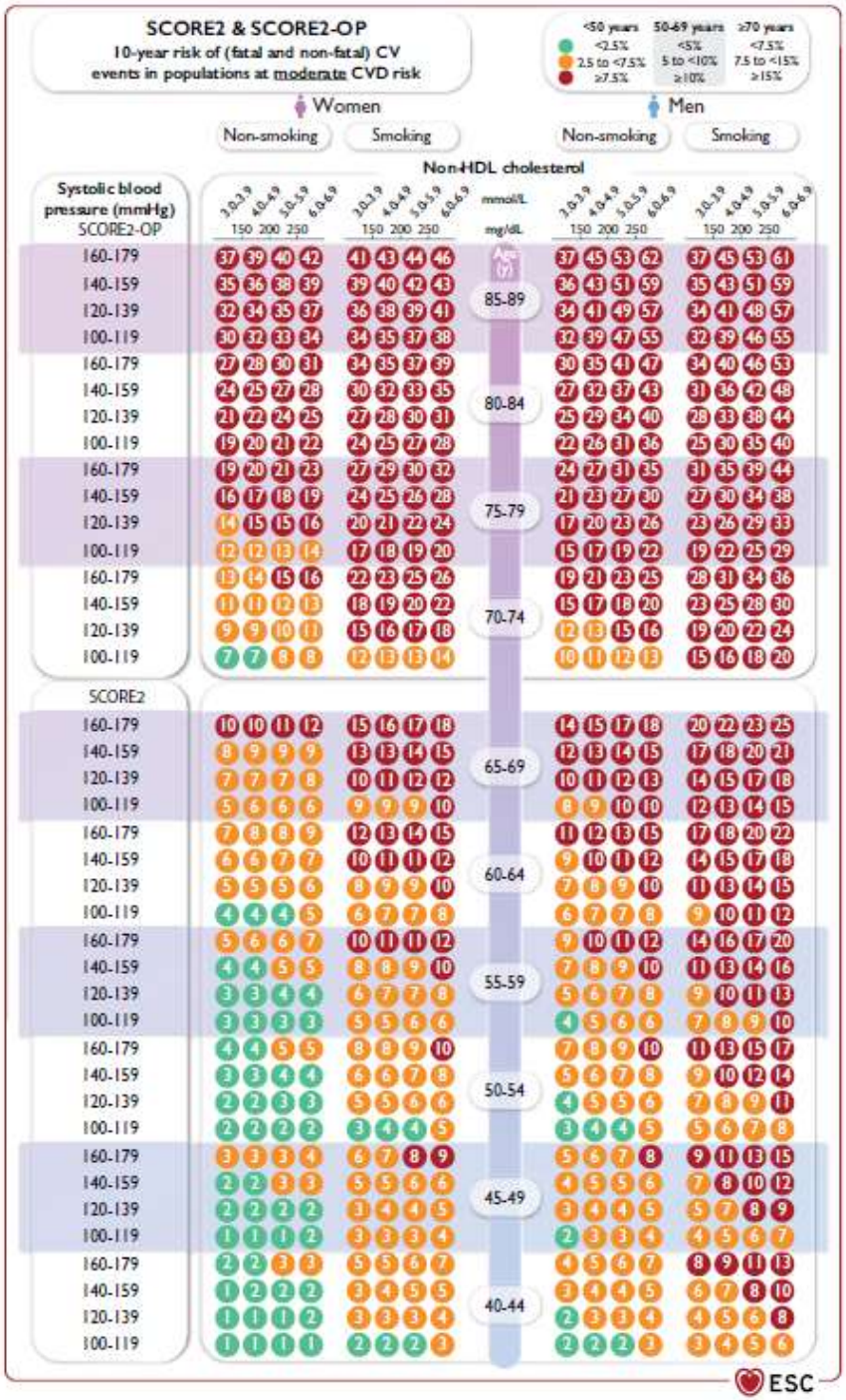
ESC GUIDELINES

# 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice

## Developed by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies

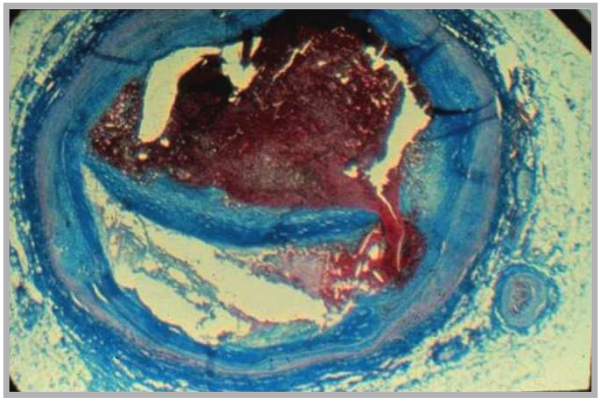
## With the special contribution of the European Association of Preventive Cardiology (EAPC)

Authors/Task Force Members: Frank L.J. Visseren* (Chairperson) (Netherlands), François Mach* (Chairperson) (Switzerland), Yvo M. Smulders† (Task Force Coordinator) (Netherlands), David Carballo† (Task Force Coordinator) (Switzerland), Konstantinos C. Koskinas (Switzerland), Maria Bäck (Sweden), Athanase Benetos[8] (France), Alessandro Biffi[7,10] (Italy), José-Manuel Boavida[9] (Portugal), Davide Capodanno (Italy), Bernard Cosyns (Belgium), Carolyn Crawford (Northern Ireland), Constantinos H. Davos (Greece), Ileana Desormais (France), Emanuele Di Angelantonio (United Kingdom), Oscar H. Franco (Switzerland), Sigrun Halvorsen (Norway), F. D. Richard Hobbs[13] (United Kingdom), Monika Hollander (Netherlands), Ewa A. Jankowska (Poland), Matthias Michal[11] (Germany), Simona Sacco[6] (Italy), Naveed Sattar (United Kingdom), Lale Tokgozoglu[2] (Turkey), Serena Tonstad (Norway), Konstantinos P. Tsioufis[5] (Greece), Ineke van Dis[3] (Netherlands), Isabelle C. van Gelder (Netherlands), Christoph Wanner[4] (Germany), Bryan Williams (United Kingdom), ESC Scientific Document Group




# 2021 ESC Guidelines on CV Disease Prevention in Clinical Practice

*Eur Heart J 2021; 42:3227-37*



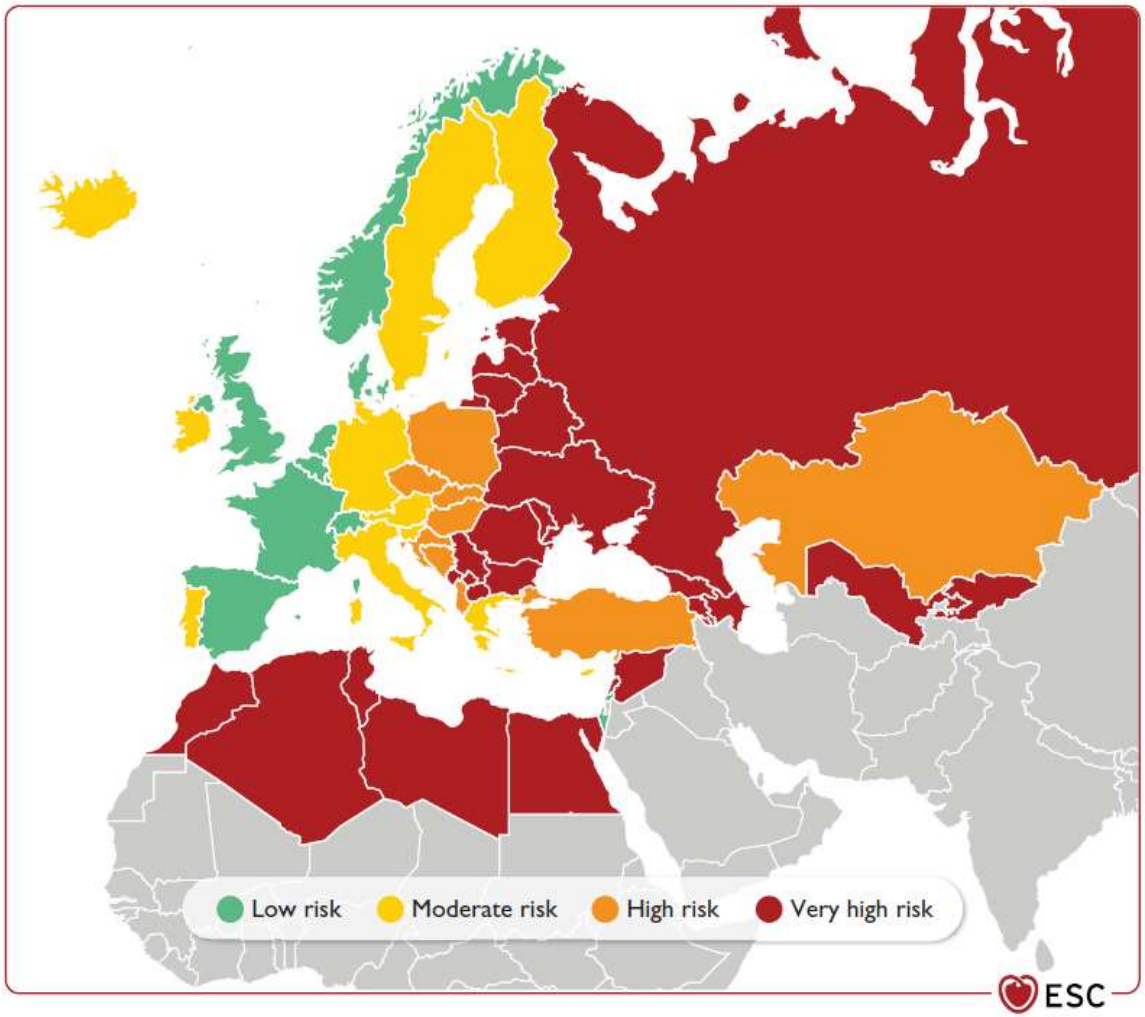
ESC
European Society of Cardiology

EPC

# Kardiovaskuläre Letalitätsdaten in Europa

## *Disease Burden and Mortality Estimates*

*www.who.int/healthinfo/global_burden-disease/estimates/en (4 June 2021)*

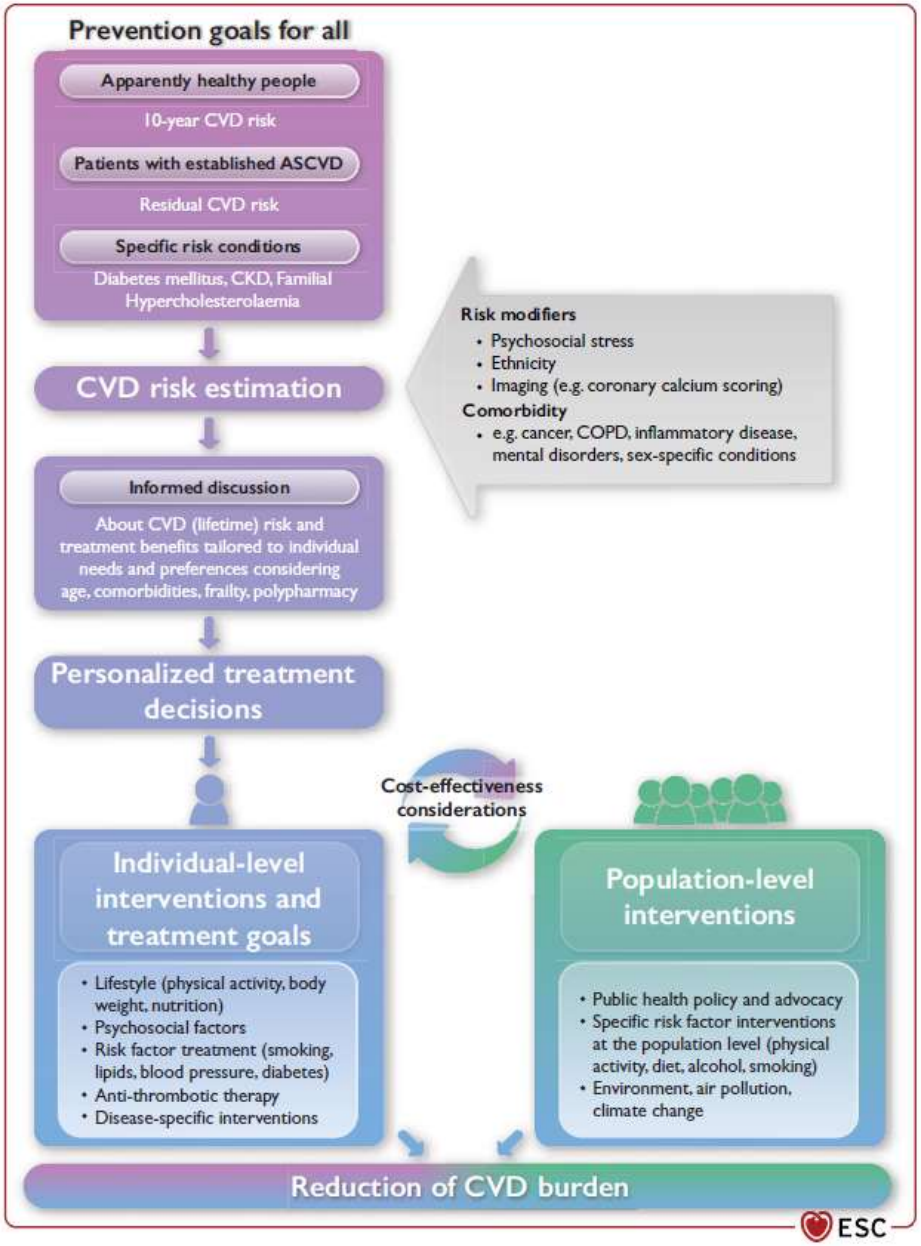



Weltgesundheitsorganisation
*World Health Organization*

World Health Organization

# 2021 ESC Guidelines on CV Disease Prevention in Clinical Practice

*Eur Heart J 2021; 42:3227-37*




**Recommendations for CVD risk assessment**

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| Systematic global CVD risk assessment is recommended in individuals with any major vascular risk factor (i.e. family history of premature CVD, FH, CVD risk factors such as smoking, arterial hypertension, DM, raised lipid level, obesity, or comorbidities increasing CVD risk). | I | C |
| Systematic or opportunistic CV risk assessment in the general population in men >40 years of age and in women >50 years of age or postmenopausal with no known ASCVD risk factors may be considered.[9] | IIb | C |
| In those individuals who have undergone CVD risk assessment in the context of opportunistic screening, a repetition of screening after 5 years (or sooner if risk was close to treatment thresholds) may be considered. | IIb | C |
| Opportunistic screening of BP in adults at risk for the development of hypertension, such as those who are overweight or with a known family history of hypertension, should be considered.[19] | IIa | B |
| Systematic CVD risk assessment in men <40 years of age and women <50 years of age with no known CV risk factors is not recommended.[9] | III | C |

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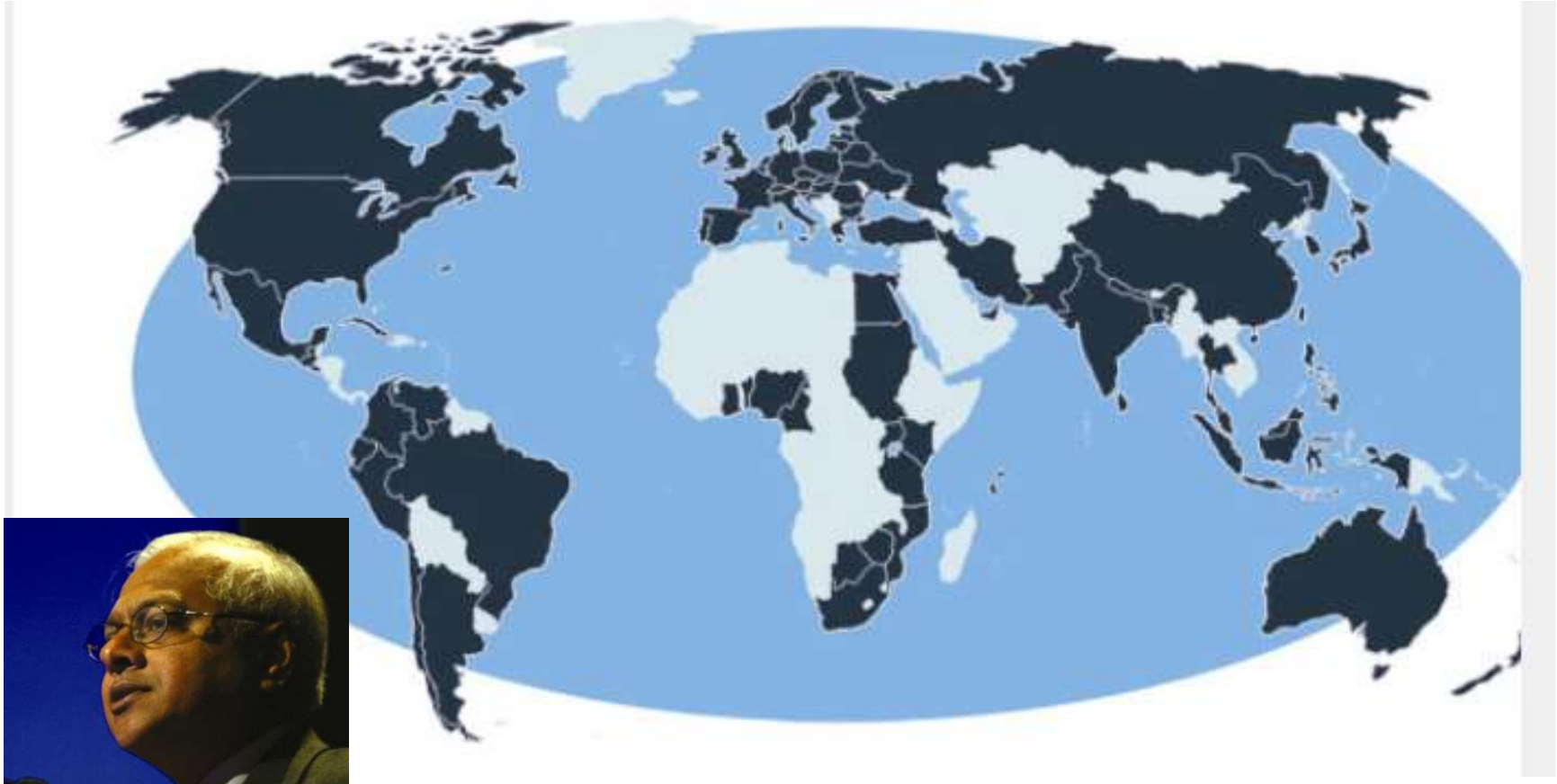
# Risiko für Myokardinfarkt

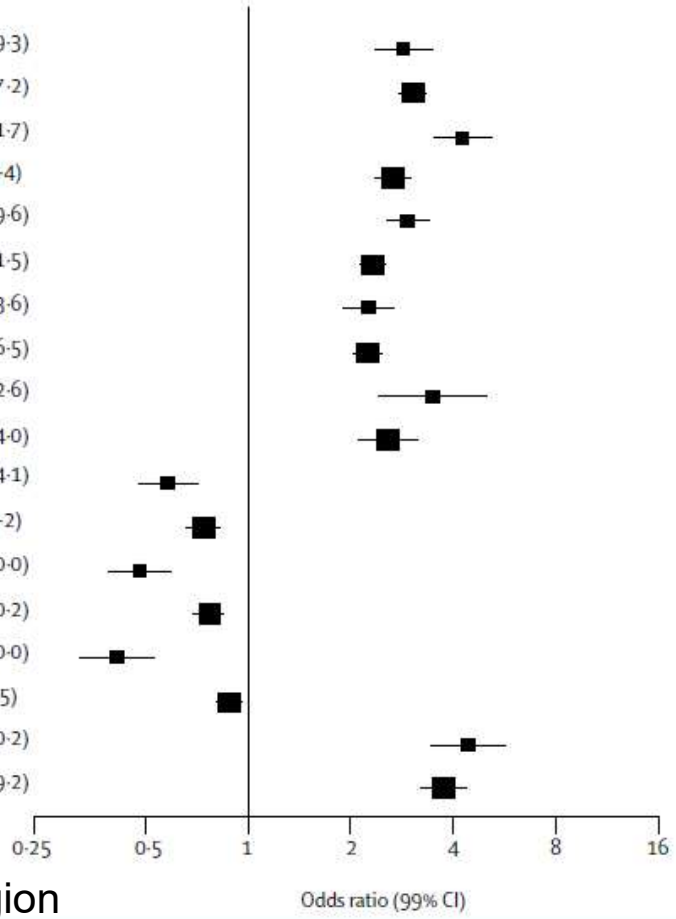
***Yusuf S, et al. INTERHEART Study. Lancet 2004; 364:937-52***



# Assoziation von RF und MI

***Yusuf S, et al. INTERHEART Study. Lancet 2004; 364:937-52***

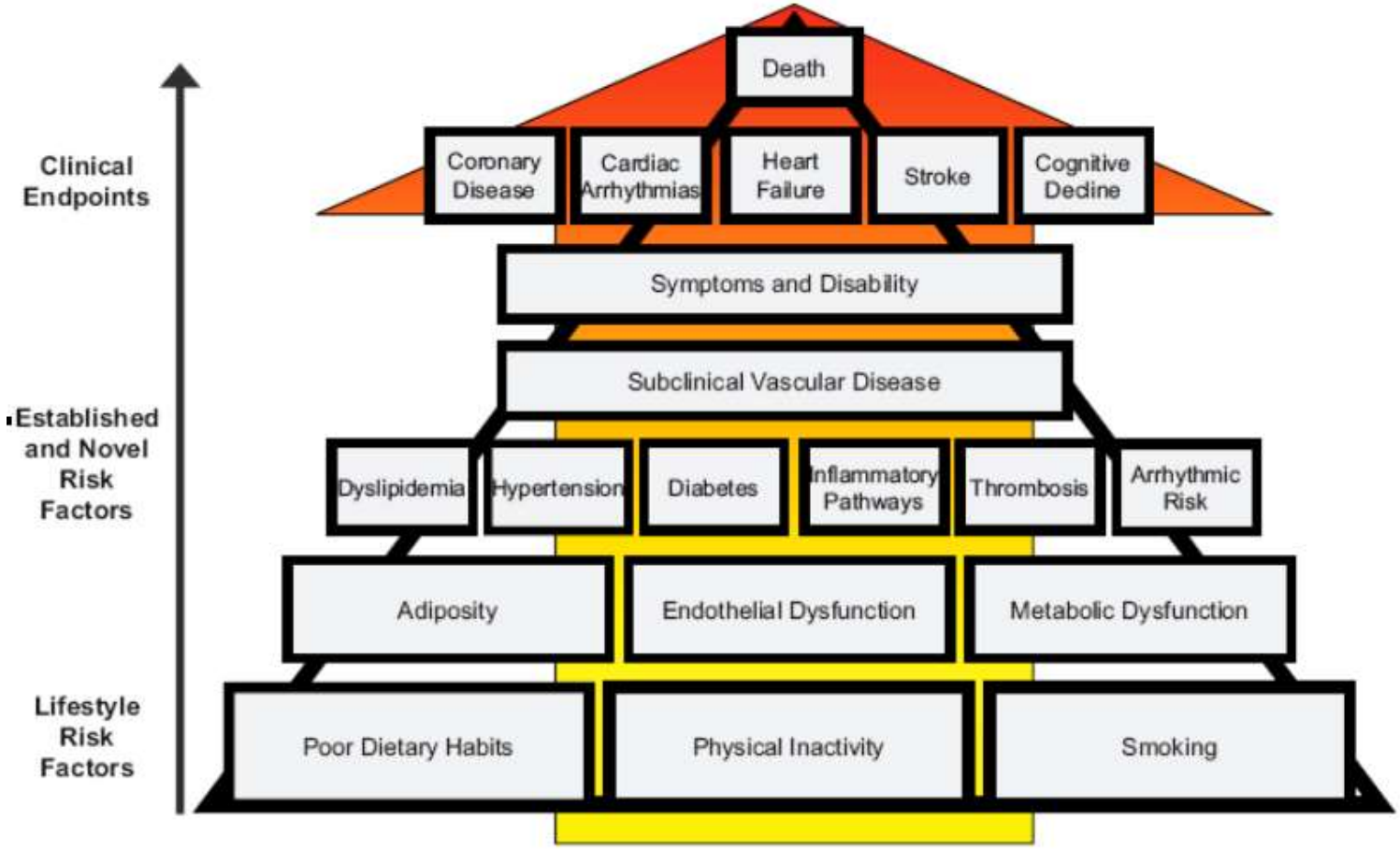
| Risk factor | Sex | Control (%) | Case (%) | Odds ratio (99% CI) | PAR (99% CI) |
|---|---|---|---|---|---|
| Current smoking | F | 9·3 | 20·1 | 2·86 (2·36–3·48) | 15·8% (12·9–19·3) |
| | M | 33·0 | 53·1 | 3·05 (2·78–3·33) | 44·0% (40·9–47·2) |
| Diabetes | F | 7·9 | 25·5 | 4·26 (3·51–5·18) | 19·1% (16·8–21·7) |
| | M | 7·4 | 16·2 | 2·67 (2·36–3·02) | 10·1% ( 8·9–11·4) |
| Hypertension | F | 28·3 | 53·0 | 2·95 (2·57–3·39) | 35·8% (32·1–39·6) |
| | M | 19·7 | 34·6 | 2·32 (2·12–2·53) | 19·5% (17·7–21·5) |
| Abdominal obesity | F | 33·3 | 45·6 | 2·26 (1·90–2·68) | 35·9% (28·9–43·6) |
| | M | 33·3 | 46·5 | 2·24 (2·03–2·47) | 32·1% (28·0–36·5) |
| Psychosocial index | F | – | – | 3·49 (2·41–5·04) | 40·0% (28·6–52·6) |
| | M | – | – | 2·58 (2·11–3·14) | 25·3% (18·2–34·0) |
| Fruits/veg | F | 50·3 | 39·4 | 0·58 (0·48–0·71) | 17·8% (12·9–24·1) |
| | M | 39·6 | 34·7 | 0·74 (0·66–0·83) | 10·3% ( 6·9–15·2) |
| Exercise | F | 16·5 | 9·3 | 0·48 (0·39–0·59) | 37·3% (26·1–50·0) |
| | M | 20·3 | 15·8 | 0·77 (0·69–0·85) | 22·9% (16·9–30·2) |
| Alcohol | F | 11·2 | 6·3 | 0·41 (0·32–0·53) | 46·9% (34·3–60·0) |
| | M | 29·1 | 29·6 | 0·88 (0·81–0·96) | 10·5% ( 6·1–17·5) |
| ApoB/ApoA1 ratio | F | 14·1 | 27·0 | 4·42 (3·43–5·70) | 52·1% (44·0–60·2) |
| | M | 21·9 | 35·5 | 3·76 (3·23–4·38) | 53·8% (48·3–59·2) |




Adjusted for age, sex, and geographic region

# Präklinische Atherosklerose

***Mozaffarin D, et al. Circulation 2008; 117:3031-8***



# Risikscores: Einschränkungen

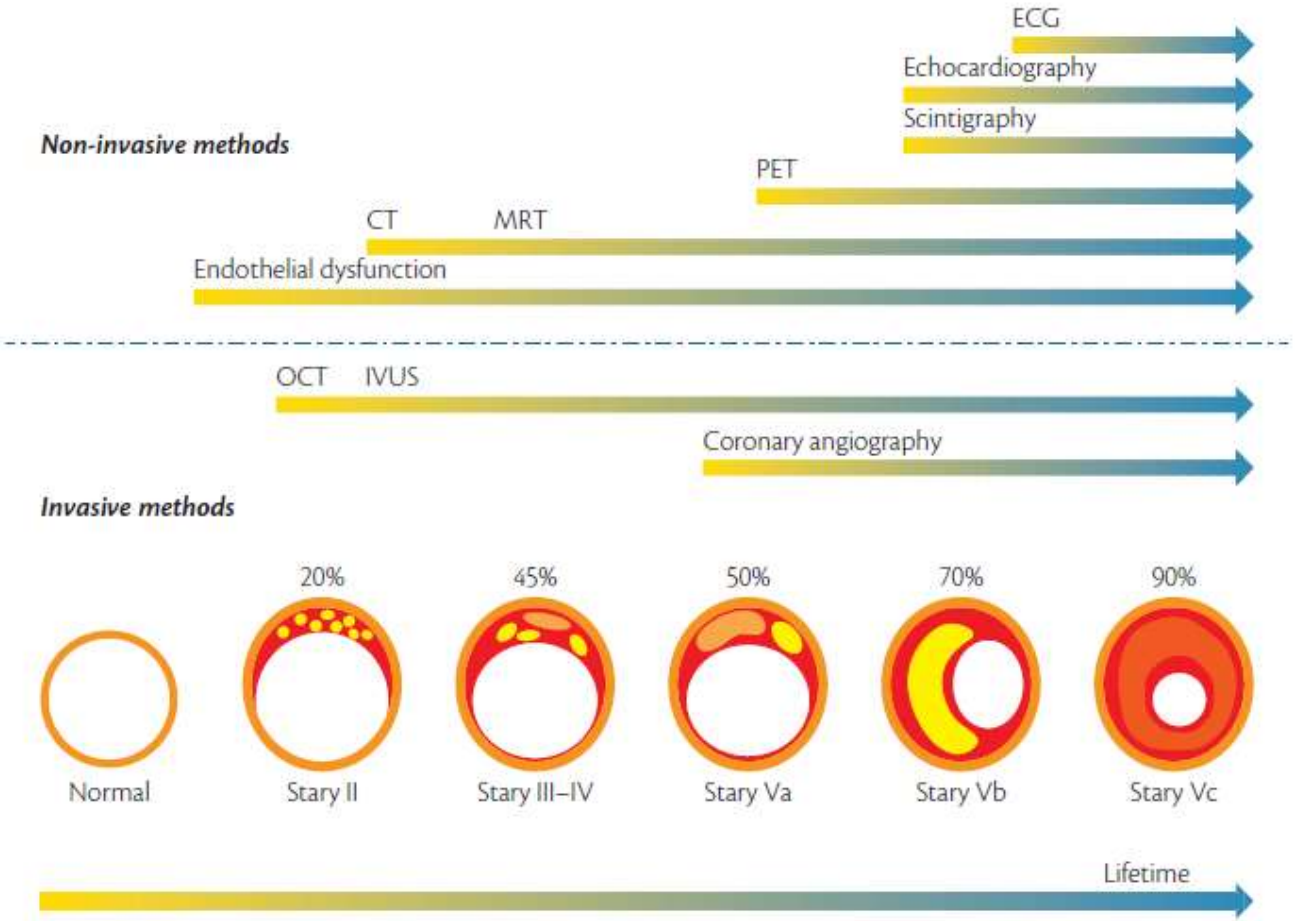
## *Mureddu GF, …, Nixdorff U. Eur Heart J Cardiovasc Imaging* 2013

| Study and country | Population/ sample size | Age range | Endpoints | Calculates | Variables | Advantages | Disadvantages |
|---|---|---|---|---|---|---|---|
| Framingham 1998<br>USA<br>Wilson *et al. Circulation* 1998;97:1837–47. | Population cohort (original +offspring) 5345 | 30–74 | All CHD/ Non-fatal and fatal CVD events | 10-year risk of CHD events | Sex, age, T-Chol, HDL- Chol, SBP, smoking, diabetes, hypertensive treatment | • Most closely phenotyped cohort, therefore most complete data with high validity for risk factors<br>• Most widely utilized and validated<br>• Multi-generational<br>• Can be adapted to other countries showing a good discrimination (C-statistics: 0.66–0.88) when compared with external databases. | • Based on a small US largely white community<br>• Does not take into account ethnicity, family history, or socio-economic factors<br>• Include many years of exposure when CV risk in the population generally was higher than nowadays |
| Framingham 2008<br>USA<br>D'Agostino Sr *et al., Circulation* 2008;117:743–53. | Population cohort (original +offspring) 8491 | 30–74 | Global CVD/ Non-fatal and fatal CVD events | 10-year risk of CVD events Risk age | Sex, age, T-Chol, HDL- Chol, SBP, smoking, diabetes, hypertensive treatment | • Most closely phenotyped cohort, therefore most complete data with high validity for risk factors<br>• Takes into account the multifactorial nature of CVD<br>• Most widely published, utilized and validated of all CVD risk scores<br>• Multi-generational<br>• Can be adjusted for individual countries | • Based on a small US largely white community<br>• Does not take into account ethnicity, family history, or socio-economic factors<br>• Associations with events include many years of exposure when CV risk in the population generally was higher than nowadays |
| SCORE 2003<br>Europe<br>Conroy RM *et al. Eur Heart J* 2003;24: 987–1003. | Pooled data set of cohort studies/ 205.178 | 45–64 | CVD Death | 10-year risk of CVD mortality | Sex, age, T-Chol, HDL- Chol or T-Chol/HDL-Chol ratio, SBP, smoking | • Based on contemporary large population based studies in 12 European countries<br>• Intuitive, easy to use<br>• Takes into account the multifactorial nature of CVD<br>• Modifiable for individual country CVD data<br>• Versions in high and low-risk countries | • Only predicts risk of CV death—does not take into account nonfatal CVD events<br>• May underestimate risk in patients with diabetes, central obesity, family history of premature CVD, low HDL or elevated triglyceride, fibrinogen, Lp(a) and B, hs-CRP, or homocysteine levels |


| Study and country | Population/ sample size | Age range | Endpoints | Calculates | Variables | Advantages | Disadvantages |
|---|---|---|---|---|---|---|---|
| Framingham 1998<br>USA<br>Wilson *et al. Circulation* 1998;97:1837–47. | Population cohort (original +offspring) 5345 | 30–74 | All CHD/ Non-fatal and fatal CVD events | 10-year risk of CHD events | Sex, age, T-Chol, HDL- Chol, SBP, smoking, diabetes, hypertensive treatment | • Most closely phenotyped cohort, therefore most complete data with high validity for risk factors<br>• Most widely utilized and validated<br>• Multi-generational<br>• Can be adapted to other countries showing a good discrimination (C-statistics: 0.66–0.88) when compared with external databases. | • Based on a small US largely white community<br>• Does not take into account ethnicity, family history, or socio-economic factors<br>• Include many years of exposure when CV risk in the population generally was higher than nowadays |
| Framingham 2008<br>USA<br>D'Agostino Sr *et al., Circulation* 2008;117:743–53. | Population cohort (original +offspring) 8491 | 30–74 | Global CVD/ Non-fatal and fatal CVD events | 10-year risk of CVD events Risk age | Sex, age, T-Chol, HDL- Chol, SBP, smoking, diabetes, hypertensive treatment | • Most closely phenotyped cohort, therefore most complete data with high validity for risk factors<br>• Takes into account the multifactorial nature of CVD<br>• Most widely published, utilized and validated of all CVD risk scores<br>• Multi-generational<br>• Can be adjusted for individual countries | • Based on a small US largely white community<br>• Does not take into account ethnicity, family history, or socio-economic factors<br>• Associations with events include many years of exposure when CV risk in the population generally was higher than nowadays |
| SCORE 2003<br>Europe<br>Conroy RM *et al. Eur Heart J* 2003;24: 987–1003. | Pooled data set of cohort studies/ 205.178 | 45–64 | CVD Death | 10-year risk of CVD mortality | Sex, age, T-Chol, HDL- Chol or T-Chol/HDL-Chol ratio, SBP, smoking | • Based on contemporary large population based studies in 12 European countries<br>• Intuitive, easy to use<br>• Takes into account the multifactorial nature of CVD<br>• Modifiable for individual country CVD data<br>• Versions in high and low-risk countries | • Only predicts risk of CV death—does not take into account nonfatal CVD events<br>• May underestimate risk in patients with diabetes, central obesity, family history of premature CVD, low HDL or elevated triglyceride, fibrinogen, Lp(a) and B, hs-CRP, or homocysteine levels |

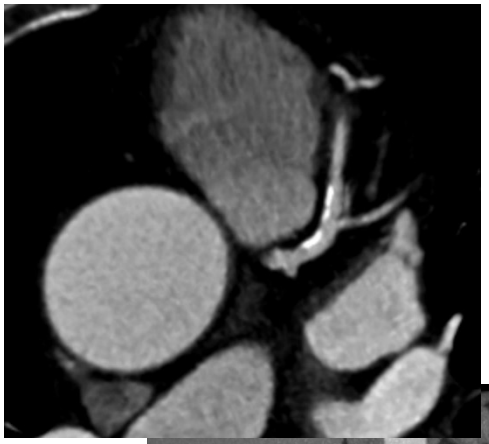
# Diagnostik der koronaren Atherosklerose

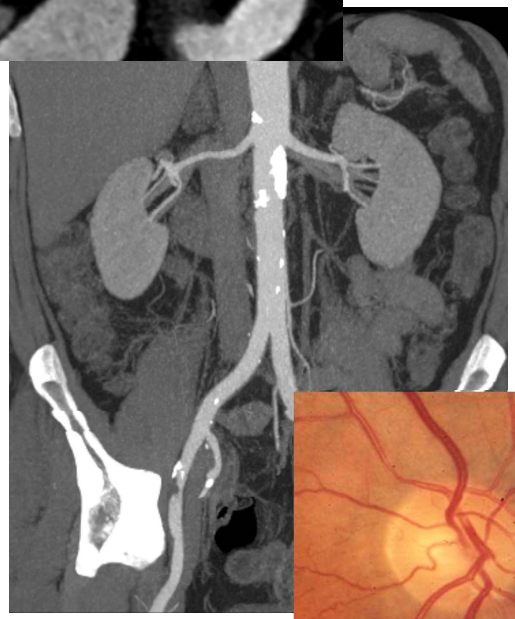
***Erbel R, Budoff M. Eur Heart J 2012; 33:1201-17***

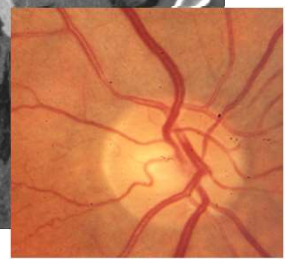


# „Der Mensch ist so alt wie seine Gefäße“

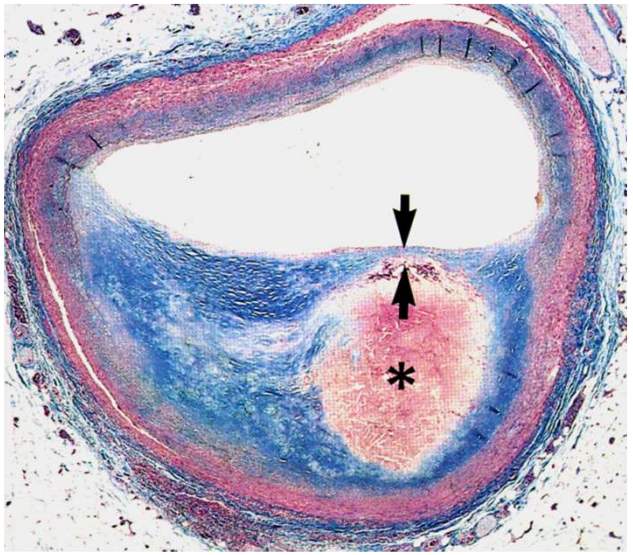
## Dr. Thomas Sydenham, 1650



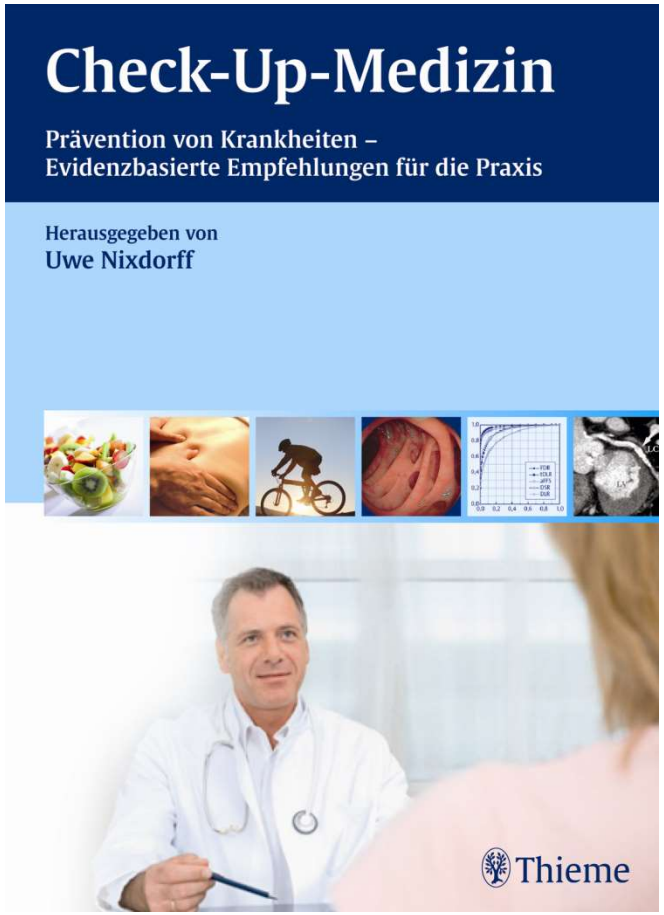


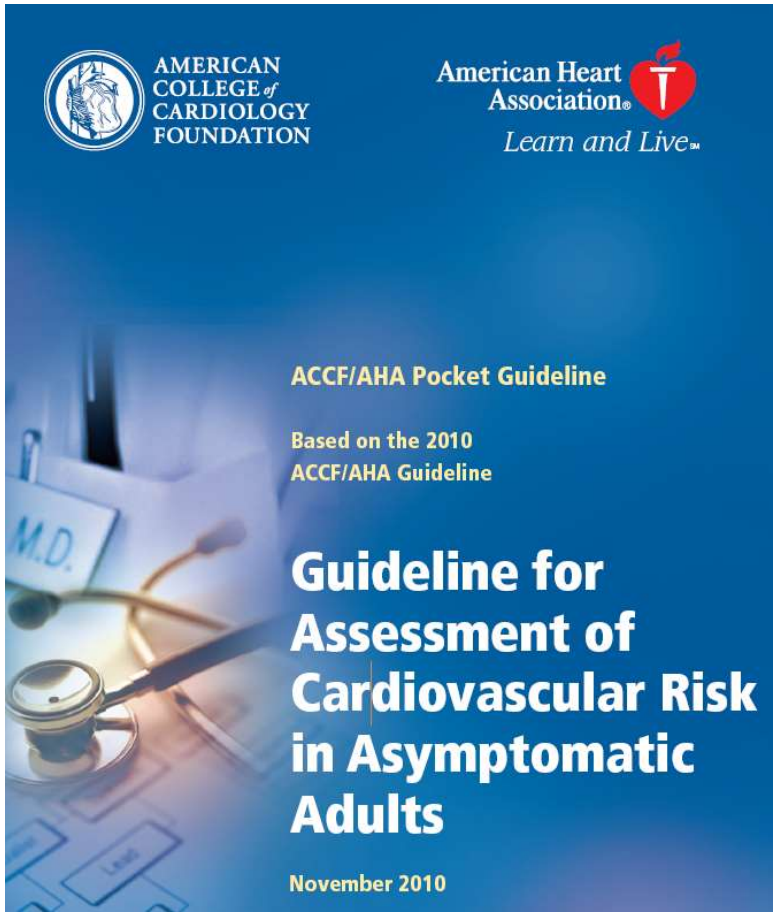


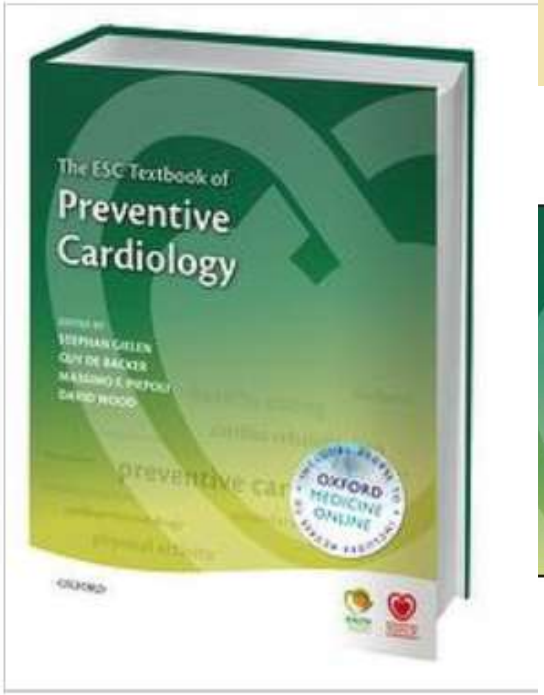
**Atherosklerose als systemische, aber asymmetrische Krankheit**



# Evidenzbasierte Check-Up-Medizin






CHAPTER 6

# Imaging in cardiovascular prevention

Uwe Nixdorff, Stephan Achenbach, Frank Bengel, Pompillio Faggiano, Sara Fernández, Christian Heiss, Thomas Mengden, Gian Francesco Mureddu, Eike Nagel, Valentina Puntmann, and Jose Zamorano

## Contents

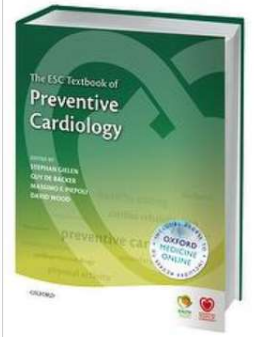


## Summary

Imaging tools in preventive cardiology can be divided into imaging modalities for assessing pre-clinical and clinical atherosclerosis and those for functional assessment of vascular function or vascular inflammation. Intima–media thickness as well as coronary calcium scoring are most frequently used to calculate the likelihood of pre-clinical atherosclerosis. However, beyond these two measurements there are other parameters derived by ultrasound and multi-detector computed tomography as well as

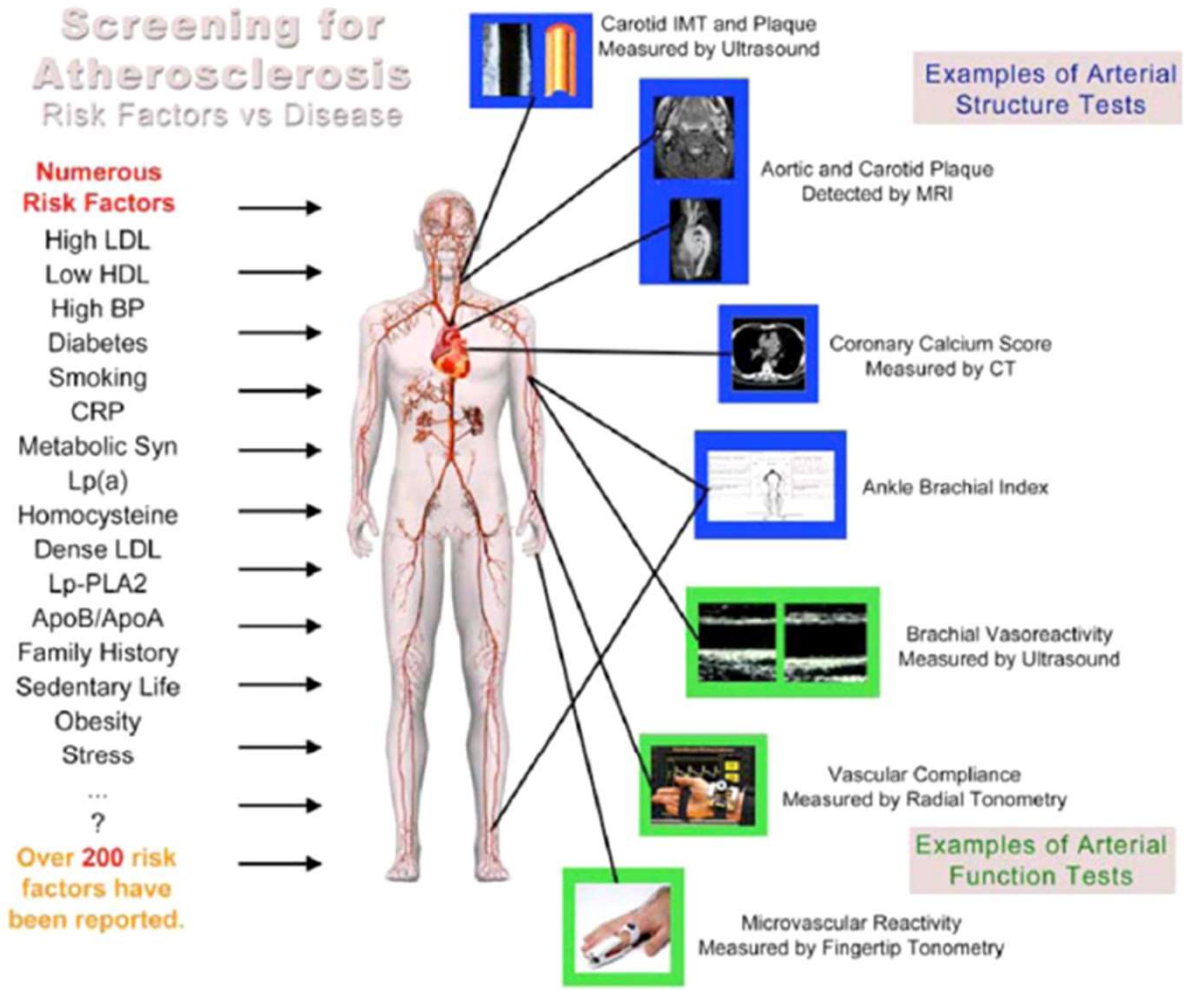
## Contents





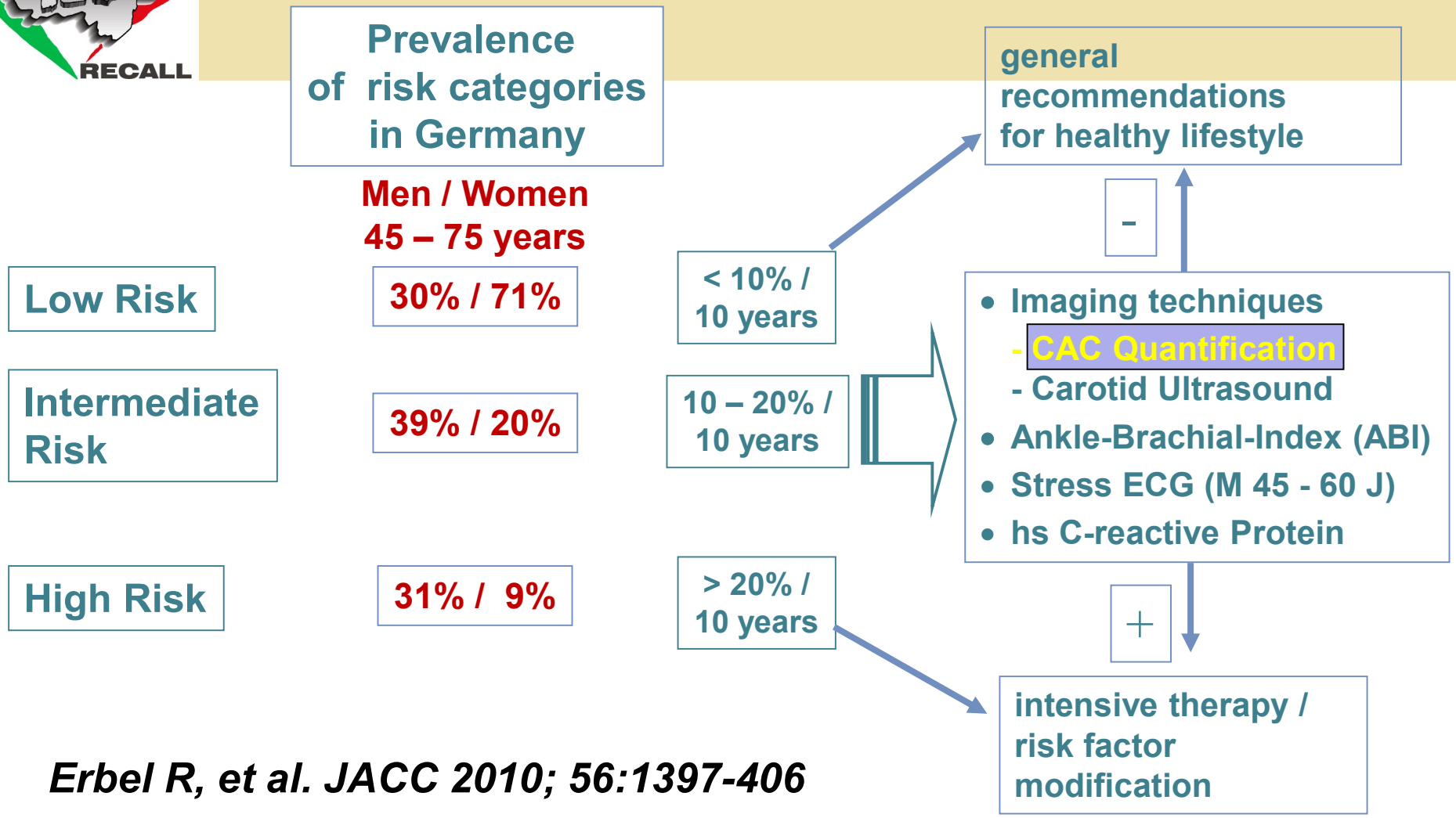
# Diagnose der Präklinische Atherosklerose

## *Naghavi M, Falk E, Hecht HS. Am J Cardiol 2006; 98:2H-15H*




*From vulnerable plaque to vulnerable patient – Part III: Executive summary of the Screening for Heart Attack Prevention and Education (SHAPE) Task Force report.*

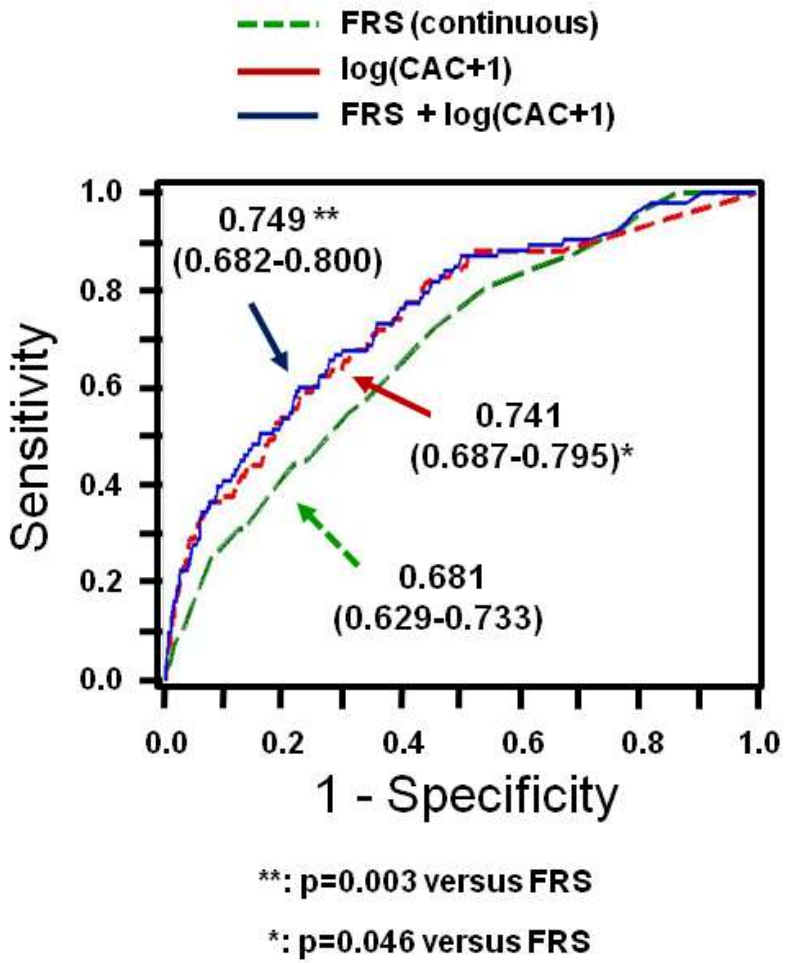
# Heinz Nixdorf Recall-Studie:




*Erbel R, et al. JACC 2010; 56:1397-406*

# Nixdorf-Recall:

## *Areas under the ROC curve*



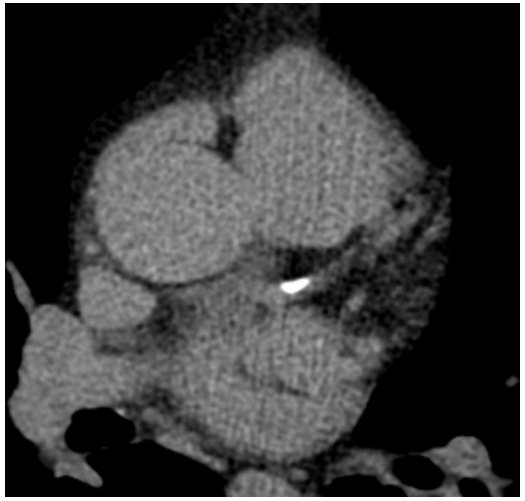

**: p=0.003 versus FRS

*: p=0.046 versus FRS

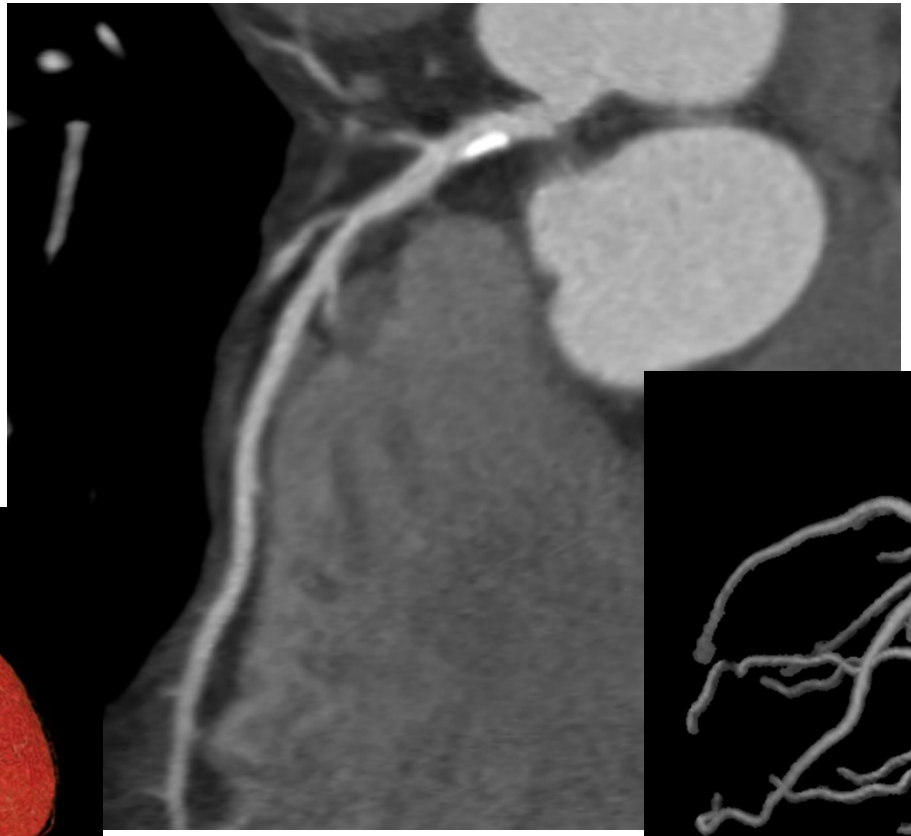
***Erbel R, et al. JACC 2010; 56:1397-406***

# Kardiale Mehrschicht-Computertomographie

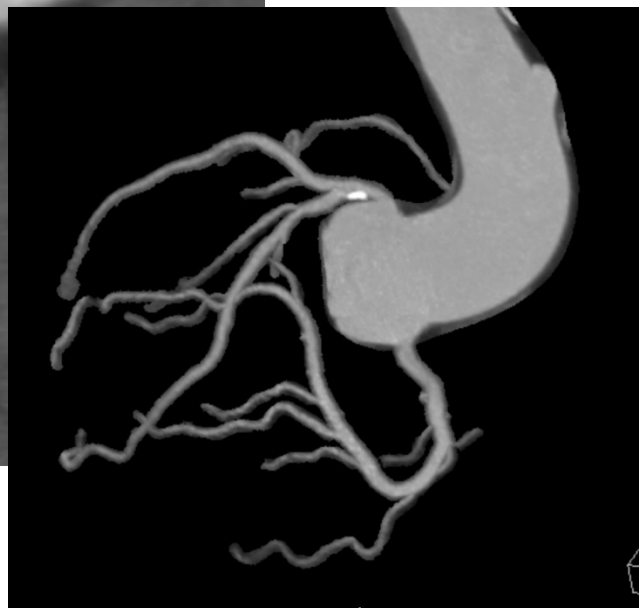
## EPC Check-Up eines 56-jährigen asymptomatischen Individuums



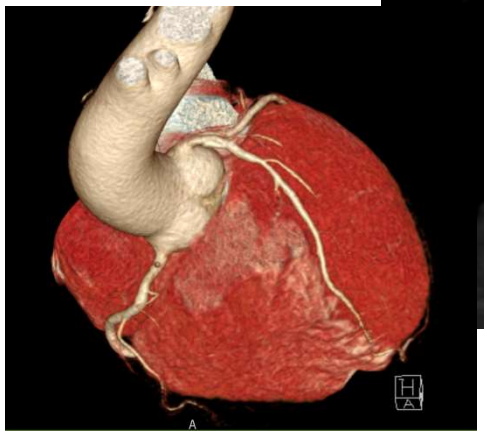
Coronares Calcium-Scoring (CCAC)



Coronarangiographie (CCTA) MIP = maximale Intensitäts-projektion



Coronar-angio-graphie (CCTA) VR = Volume Rendering



Coronarangiographie (CCTA) MPR = multiplanare Rekonstruktion

CHAPTER 6

## Imaging in cardiovascular prevention

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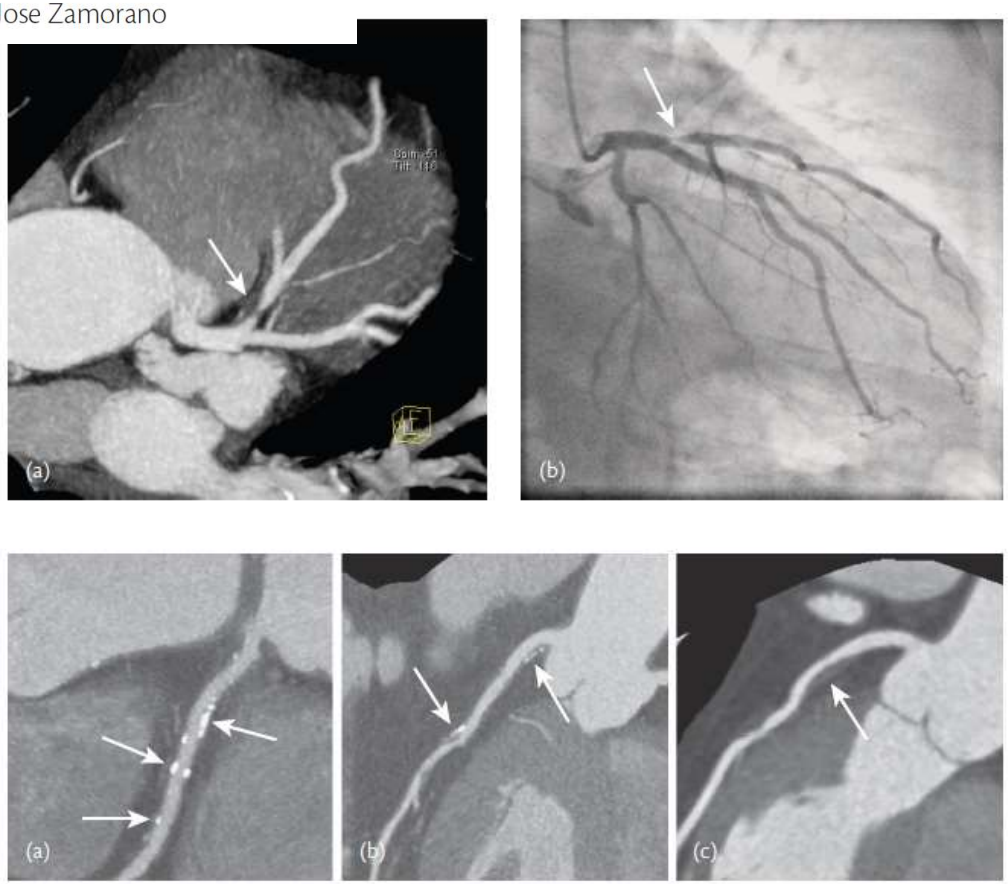
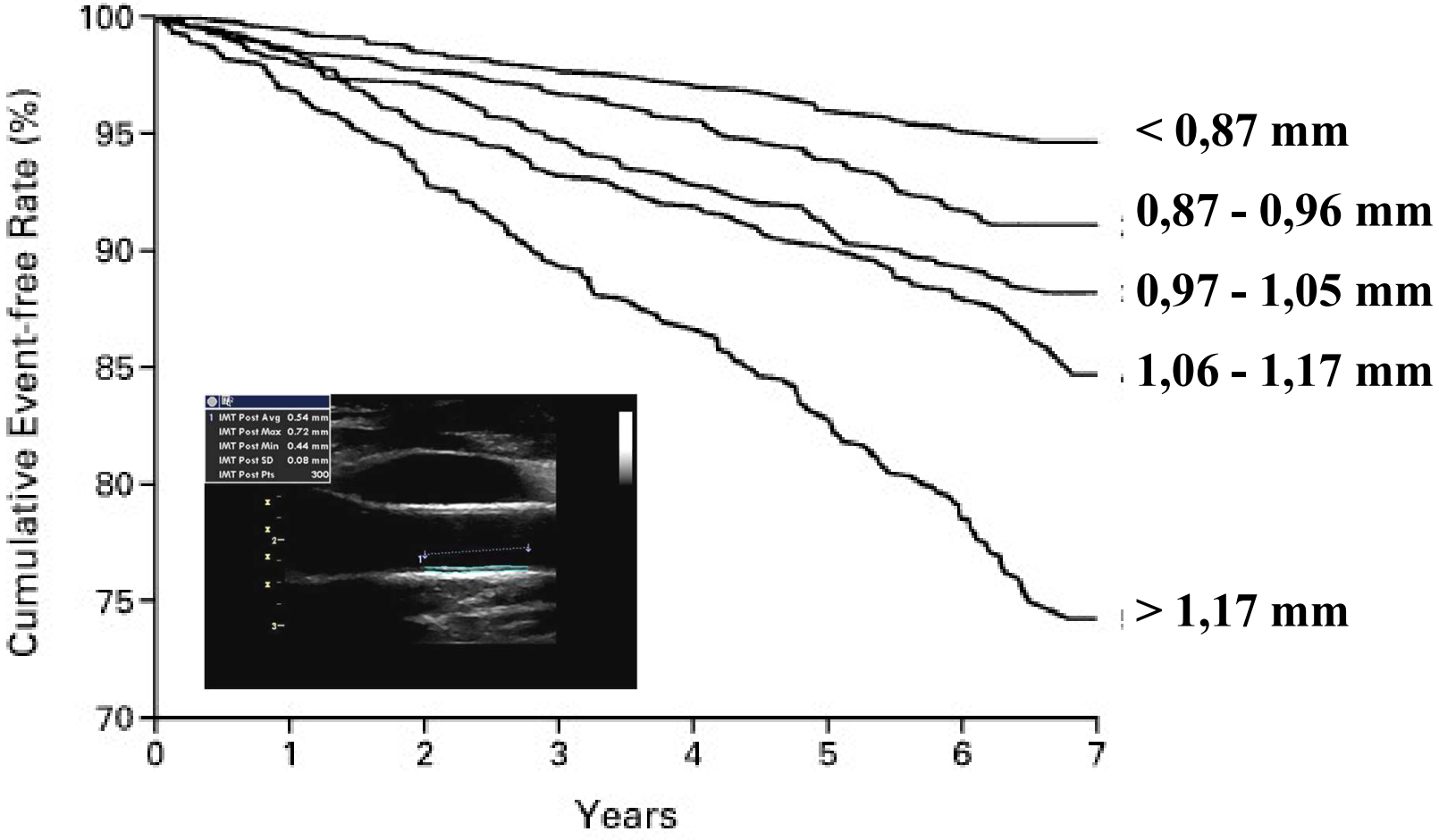
# European Textbook of Preventive Cardiology, 2015




*With courtesy to Prof. S. Achenbach*

# Karotidale IMT: MI und Schlaganfall

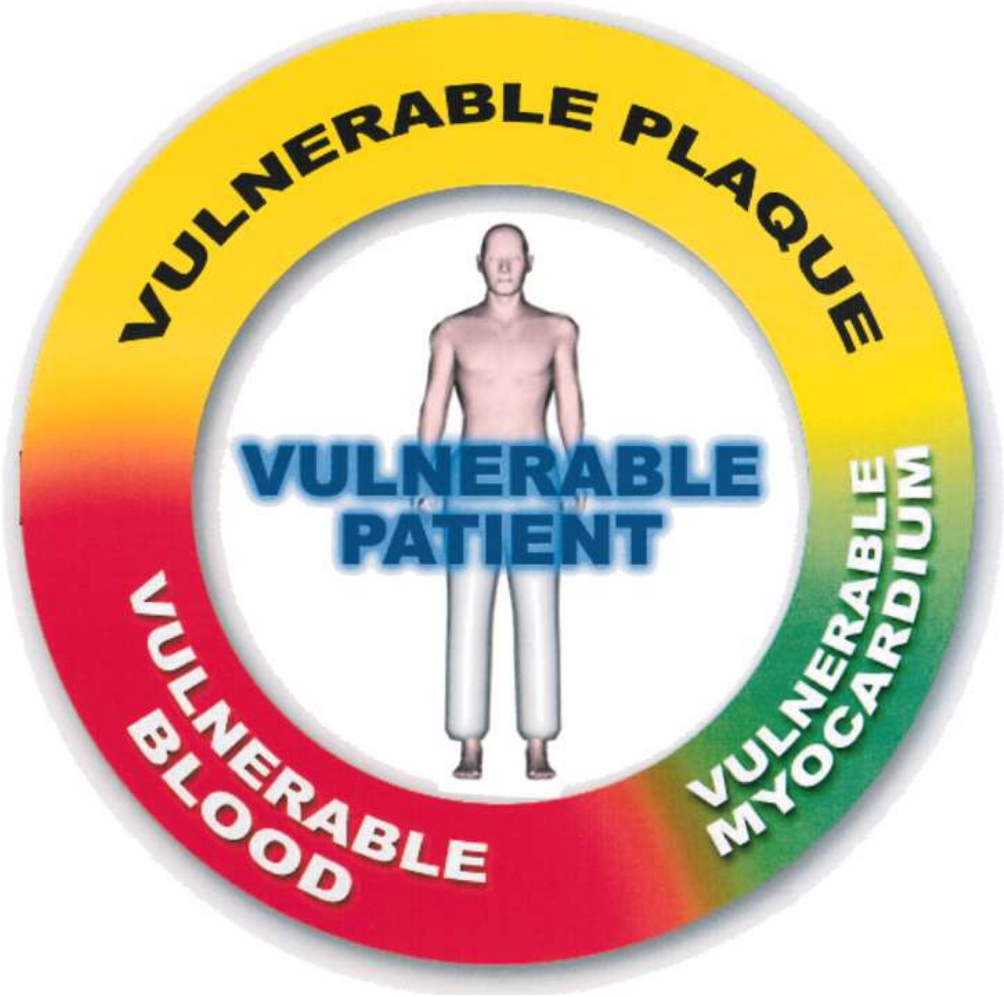
*O´Leary DH, et al. N Engl J Med 1999; 340:14-22*



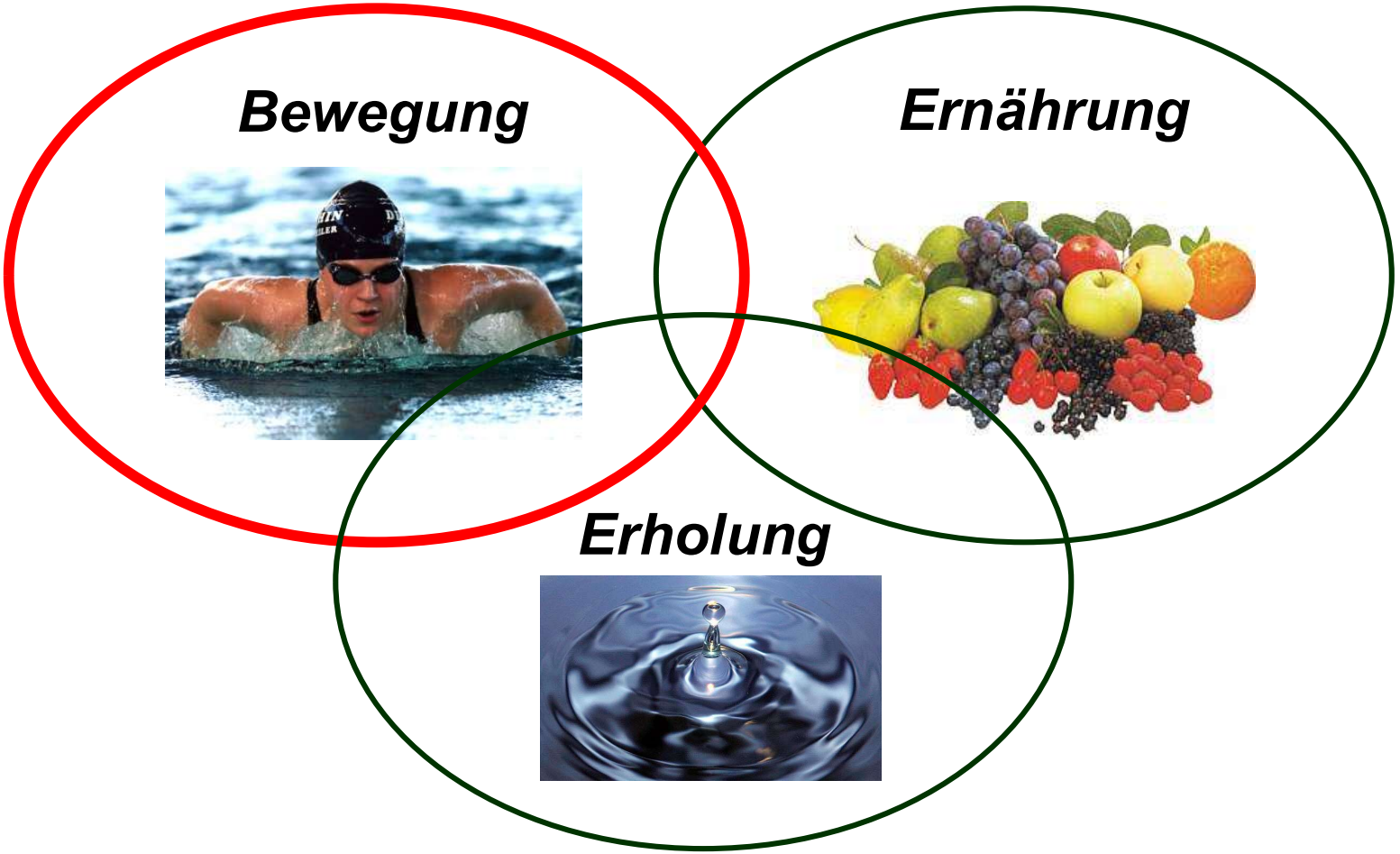

**Myocardial infarction or stroke in n = 5.858 individuals (≥ 65 years)**

# Der Vulnerable Patient

*Naghavi M, et al. Circulation 2003; 108:1664-72*

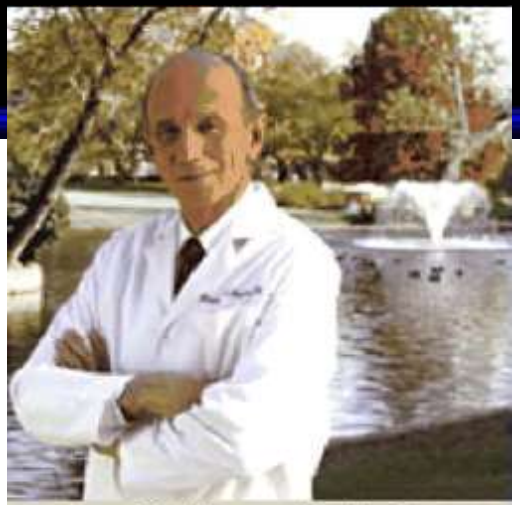


# Lebenstilmodifikation
## Drei Säulen



*It is easier to maintain good health through proper exercise, diet, and emotional balance than to regain it once it is lost.*

***Dr. Kenneth H. Cooper***



Dr. Kenneth H. Cooper

# Präventionspotentiale:
## Bewegung, Ernährung, Entspannung und Nichtrauchen

### Lebensstil





### Lebenserwartung

| | | |
|---|---|---|
| **Bewegung**<br>60 min/Tag statt "minimal" | **+ 4,5 Jahre** | 6 Kohortenstudien, USA & Schweden, n=654.827, 2012 |
| **Rauchen**<br>Nie statt regelmäßig | **+ 11 Jahre** | Million Women Study, UK, n=1,2 Millionen, 2013 |
| **Kombination**<br>4 statt 0 Punkte | **+ 17 Jahre** | EPIC Heidelberg-Kohorte (Männer), n=22.469, 2014 |

### Chronische Krankheiten

#### Herz-Kreislauf-Erkrankungen

**82%** der Herzerkrankungen korrelieren mit Lebensstilfaktoren.

Nurses Health Study, USA, n=84.129, 14 Jahre, 2000

#### Krebserkrankungen

**29%** der Krebserkrankungen korrelieren mit Lebensstilfaktoren.

Science, Analyse von Daten aus 69 Ländern, 2015 & 2017

#### COPD

**92%** der an COPD verstorbenen Personen haben geraucht.

Copenhagen City Heart Study, n=8.045, 25 Jahre, 2006

#### Diabetes Typ 2

**89%** der Fälle von Diabetes Typ 2 korrelieren mit Lebensstilfaktoren.

Cardiovascular Health Study, USA, n=4.883, 10 Jahre, 2009

ESC European Society of Cardiology

European Heart Journal (2021) 42, 3227–3337
doi:10.1093/eurheartj/ehab484

ESC GUIDELINES

# 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice

**Developed by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies**

**With the special contribution of the European Association of Preventive Cardiology (EAPC)**

**Authors/Task Force Members: Frank L.J. Visseren* (Chairperson) (Netherlands), François Mach* (Chairperson) (Switzerland), Yvo M. Smulders† (Task Force Coordinator) (Netherlands), David Carballo† (Task Force Coordinator) (Switzerland), Konstantinos C. Koskinas (Switzerland), Maria Bäck (Sweden), Athanase Benetos[8] (France), Alessandro Biffi[7,10] (Italy), José-Manuel Boavida[9] (Portugal), Davide Capodanno (Italy), Bernard Cosyns (Belgium), Carolyn Crawford (Northern Ireland), Constantinos H. Davos (Greece), Ileana Desormais (France), Emanuele Di Angelantonio (United Kingdom), Oscar H. Franco (Switzerland), Sigrun Halvorsen (Norway), F. D. Richard Hobbs[13] (United Kingdom), Monika Hollander (Netherlands), Ewa A. Jankowska (Poland), Matthias Michal[11] (Germany), Simona Sacco[6] (Italy), Naveed Sattar (United Kingdom), Lale Tokgozoglu[2] (Turkey), Serena Tonstad (Norway), Konstantinos P. Tsioufis[5] (Greece), Ineke van Dis[3] (Netherlands), Isabelle C. van Gelder (Netherlands), Christoph Wanner[4] (Germany), Bryan Williams (United Kingdom), ESC Scientific Document Group**

## Recommendations for physical activity

| Recommendations | Class[a] | Level[b] |
|---|---|---|
| It is recommended for adults of all ages to strive for at least 150 - 300 min a week of moderate-intensity or 75 - 150 min a week of vigorous-intensity aerobic PA, or an equivalent combination thereof, to reduce all-cause mortality, CV mortality, and morbidity.[371,372] | I | A |
| It is recommended that adults who cannot perform 150 min of moderate-intensity PA a week should stay as active as their abilities and health condition allow.[373,374] | I | B |
| It is recommended to reduce sedentary time to engage in at least light activity throughout the day to reduce all-cause and CV mortality and morbidity.[375–377] | I | B |
| Performing resistance exercise, in addition to aerobic activity, is recommended on 2 or more days per week to reduce all-cause mortality.[378,379] | I | B |
| Lifestyle interventions, such as group or individual education, behaviour-change techniques, telephone counselling, and use of consumer-based wearable activity trackers, should be considered to increase PA participation.[380–382] | IIa | B |

© ESC 2021


# Association of dietary nutrients with blood lipids and blood pressure in 18 countries: a cross-sectional analysis from the PURE study

*Andrew Mente, Mahshid Dehghan, Sumathy Rangarajan, Matthew McQueen, Gilles Dagenais, Andreas Wielgosz, Scott Lear, Wei Li, Hui Chen, Sun Yi, Yang Wang, Rafael Diaz, Alvaro Avezum, Patricio Lopez-Jaramillo, Pamela Seron, Rajesh Kumar, Rajeev Gupta, Viswanathan Mohan, Sumathi Swaminathan, Raman Kutty, Katarzyna Zatonska, Romaina Iqbal, Rita Yusuf, Noushin Mohammadifard, Rasha Khatib, Nafiza Mat Nasir, Noorhassim Ismail, Aytekin Oguz, Annika Rosengren, AfzalhusseinYusufali, Edelweiss Wentzel-Viljoen, Thandi Puoane, Jephat Chifamba, Koon Teo, Sonia S Anand, Salim Yusuf, on behalf of the Prospective Urban Rural Epidemiology (PURE) study investigators**

## Summary

**Background** The relation between dietary nutrients and cardiovascular disease risk markers in many regions worldwide is unknown. In this study, we investigated the effect of dietary nutrients on blood lipids and blood pressure, two of the most important risk factors for cardiovascular disease, in low-income, middle-income, and high-income countries.

**Methods** We studied 125 287 participants from 18 countries in North America, South America, Europe, Africa, and Asia in the Prospective Urban Rural Epidemiology (PURE) study. Habitual food intake was measured with frequency questionnaires. We assessed the associations between nutrients

**Interpretation** Our data are at odds with current recommendations to reduce total fat and saturated fats. Reducing saturated fatty acid intake and replacing it with carbohydrate has an adverse effect on blood lipids. Substituting saturated fatty acids with unsaturated fats might improve some risk markers, but might worsen others. Simulations suggest that ApoB-to-ApoA1 ratio probably provides the best overall indication of the effect of saturated fatty acids on cardiovascular disease risk among the markers tested. Focusing on a single lipid marker such as LDL cholesterol alone does not capture the net clinical effects of nutrients on cardiovascular risk.

*Lancet Diabetes Endocrinol* 2017
Published Online
August 29, 2017
http://dx.doi.org/10.1016/
S2213-8587(17)

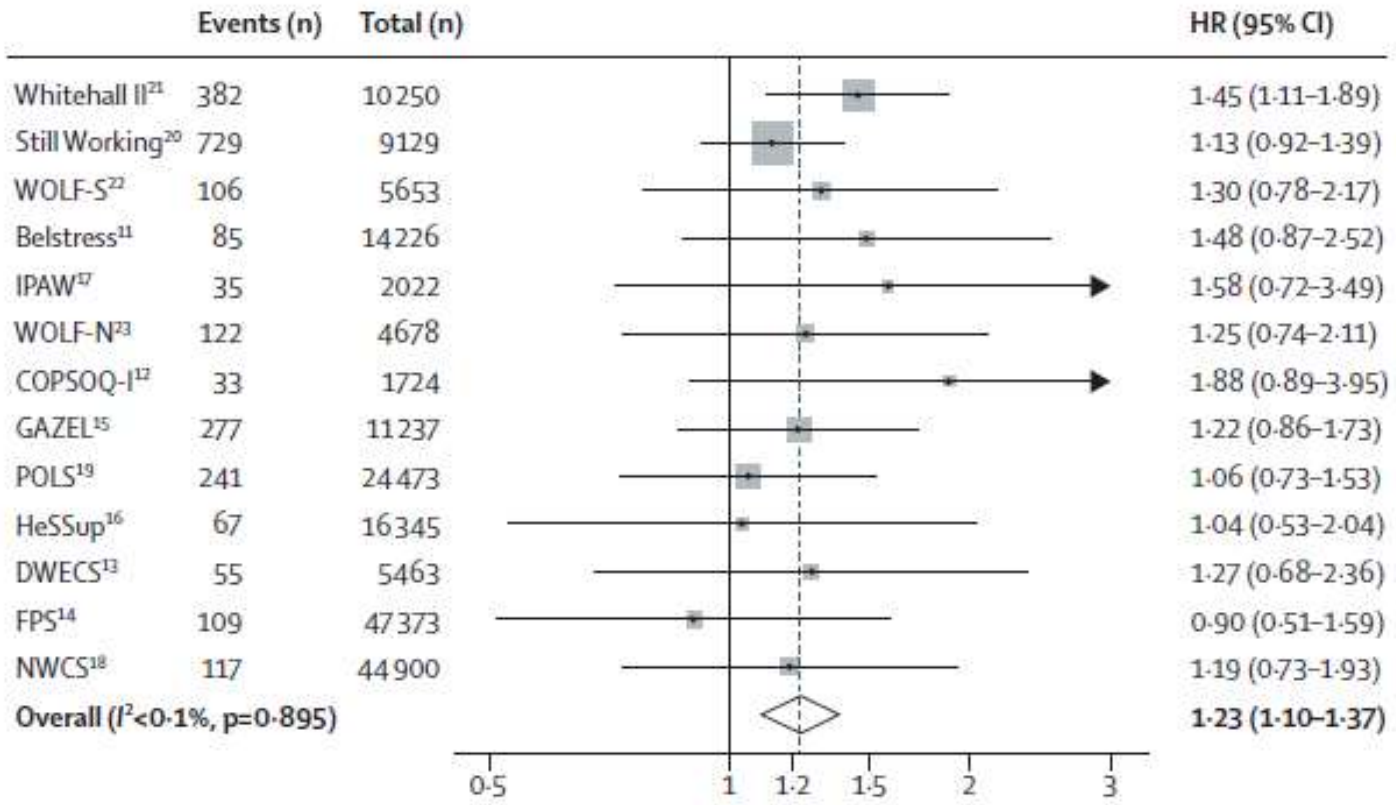
*Mente A, et al. Lancet 2017; 390:2050-62*

# DIE LOGI-PYRAMIDE


nach Prof. Dr. David Ludwig, Harvard-Universitätsklinik; modifiziert mit Erlaubnis des Autors;

# KHK-Risiko (MI oder kardialer Tod) durch *job strain* (Metaanalyse)

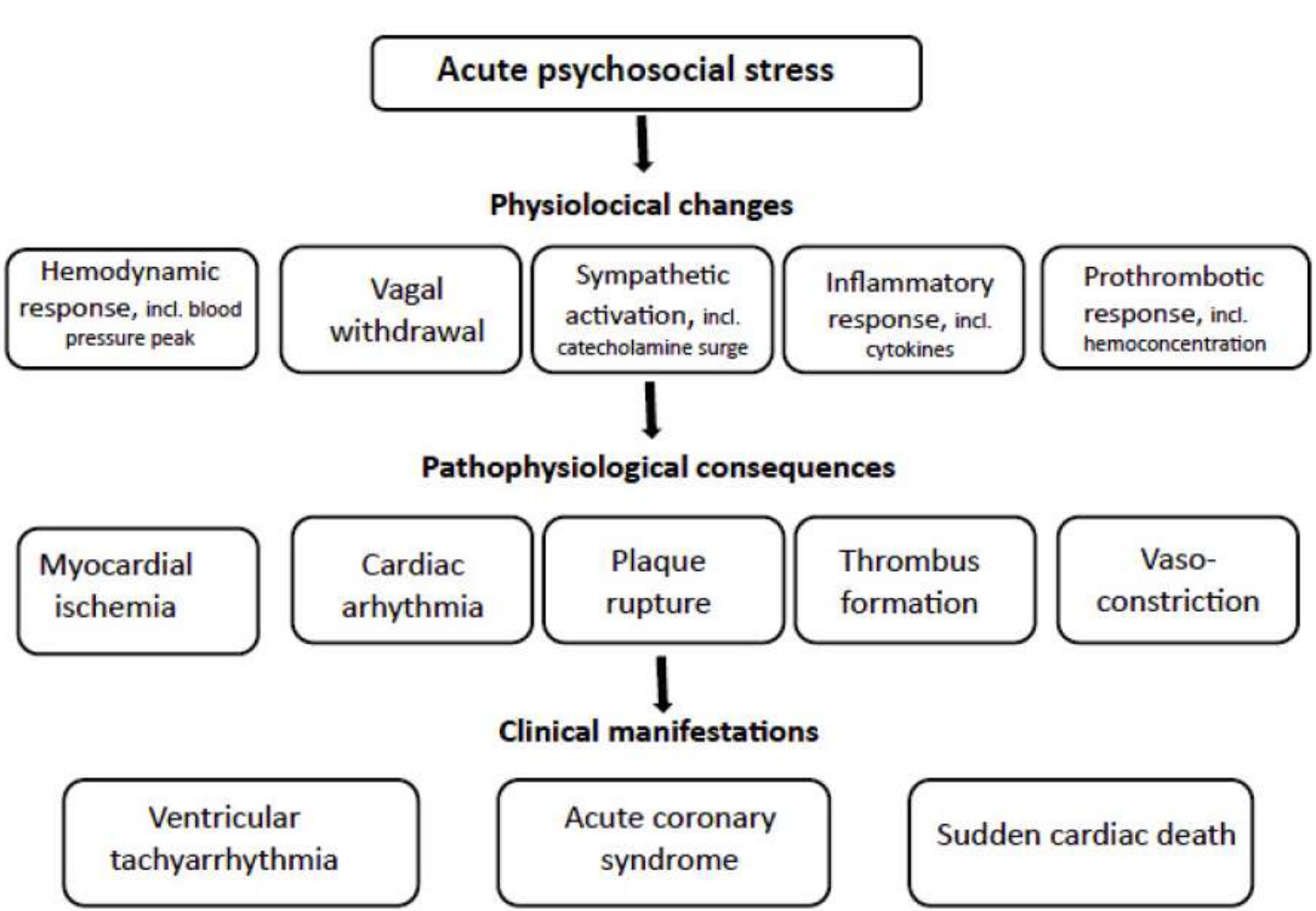
***Kivimaki M et al. Lancet 2012; 380:1491-7***




- 13 europäische Kohortenstudien (1985 – 2006); Männer u. Frauen ohne KHK
- n = 30.214 / 197.473 berichteten Stress
- Validierte job-content Questionnaires; mittlerer Follow-Up 7,5 Jahre

# Psychobiologie des Akuten Koronarsyndroms

***Von Känel R. Swiss Med Wkly 2012; 142:w13502***



# Stress-Screening

## *Prof. Wolf: Integraler Stress Test (IST)*

**biographisch** — 10 min

**Fragebögen**
Stressoren- und Stressverstärker
Patient Health Questionnaire (Lebensstil)
Burnout Inventar

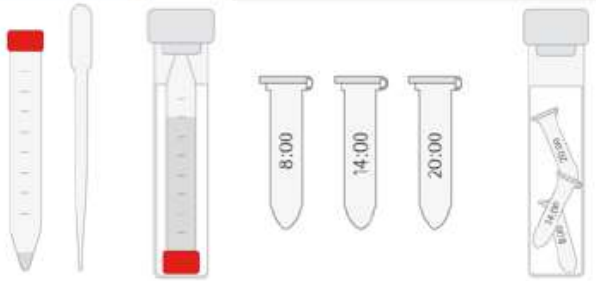
**biophysisch** — 3 Tage

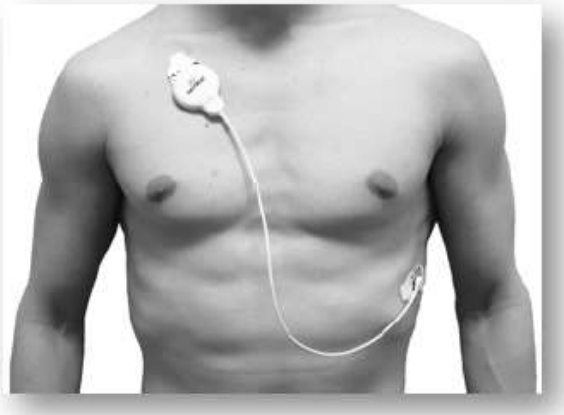
**Herzraten Variabilität**
3-tages Messung (minimal 24 h)

**biochemisch** — 5 min

**1 Urinprobe (2. Morgenuri.,**
Serotonin, Neurotransmitter

**3 Speichelproben**
Cortisol Tagesprofil



# Ressourcen-orientierte Stresstherapie

- **Modif. Ordnungstherapie** (n. S.Kneipp)
- **Konkrete Stress-Reduktion durch** CBT (entsprechend Stresstest)
- **Coaching**
- **Entspannungstechniken**: Yoga
- **„Achtsamkeits-Meditation“** (MBSR)
- **Aerober Ausdauersport**
- **Ernährungsberatung, Mikronährstoffe**
- **Schlaf-Support**
- **Neurotransmitter-Restitution**
- **Neuromodulatoren (Rhodeola rosea)**
- **Substitution der NNR** (z.B.Hydrocortison)

*With courtesy to Wolf F*

# Strategie der Behavorismus

***2016 ESC Guidelines on CV Disease Prevention in Clinical Practice***
***Eur Heart J 2016; 37:2315-81***

| | |
|---|---|
| 1. | Develop a therapeutic alliance. |
| 2. | Counsel all individuals at risk of or with manifest cardiovascular disease. |
| 3. | Assist individuals to understand the relationship between their behaviour and health. |
| 4. | Help individuals assess the barriers to behaviour change. |
| 5. | Gain commitments from individuals to own their behaviour change. |
| 6. | Involve individuals in identifying and selecting the risk factors to change. |
| 7. | Use a combination of strategies including reinforcement of the individual's capacity for change. |
| 8. | Design a lifestyle-modification plan. |
| 9. | Involve other healthcare staff whenever possible. |
| 10. | Monitor progress through follow-up contact. |

# 25-Hydroxyvitamin D: MI-Risiko

***Giovannucci E, et al. Arch Intern Med 2008; 168:1174-80***

Nested case-control study: *Health Professional FU Study*
n = 18.225 Männer: 454 Myokardinfarkte vs. 900 Kontrollen

**Table 3. Estimated RRs of MI by Level of 25(OH)D at Baseline During 10 Years of Follow-up**

| Variable | Plasma 25(OH)D, ng/mL ≤15.0 | 15.1-22.5 | 22.6-29.9 | ≥30.0 | *P* Value (Trend) |
|---|---|---|---|---|---|
| Cases/controls, No. | 63/87 | 156/307 | 165/299 | 70/207 | NA |
| RR (95% CI) | | | | | |
| Matching variables | 2.42 (1.53-3.84) | 1.65 (1.15-2.37) | 1.72 (1.22-2.42) | 1 [Reference] | <.001 |
| MV1[a] | 2.01 (1.22-3.30) | 1.45 (0.99-2.12) | 1.56 (1.09-2.22) | 1 [Reference] | .02 |
| MV2[b] | 2.09 (1.24-3.54) | 1.43 (0.96-2.13) | 1.60 (1.10-2.32) | 1 [Reference] | .02 |

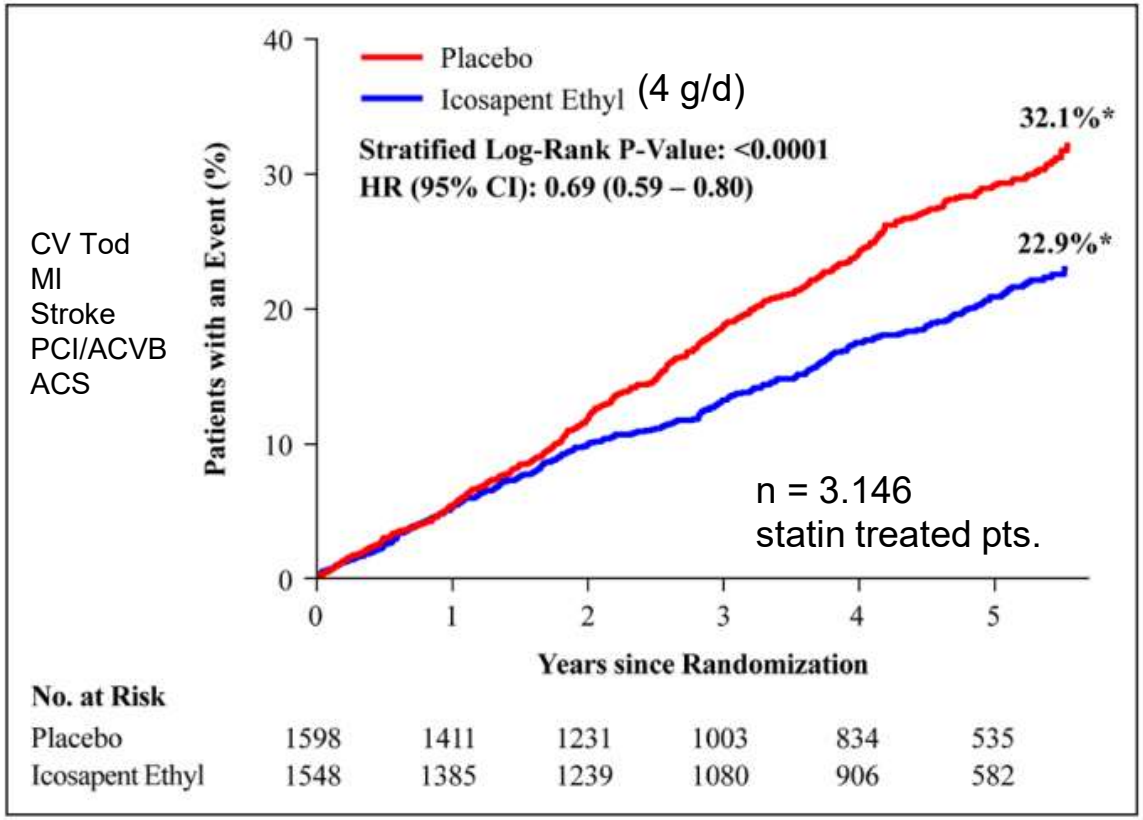
Abbreviations: CI, confidence interval; MI, myocardial infarction; MV, multivariate; NA, not applicable; 25(OH)D, 25-hydroxyvitamin D; RR, relative risk.
SI conversion factor: To convert 25(OH)D to nanomoles per liter, multiply by 2.496.
[a]MV1: matching variables (age, month and year of blood collection, and smoking status) and family history of MI before the age of 60 years, history of diabetes mellitus, history of hypertension, alcohol intake, body mass index, physical activity, region, race, multivitamin use, marine ω-3 intake, and fasting status.
[b]MV2: all the variables in MV1 and high- and low-density lipoprotein cholesterol and triglyceride levels.

# Omega-3-Fettsäuren

# REDUCE-IT: Omega-3-Fettsäuren

## *Circulation 2020; 141:367-75*

- CV Tod
- MI
- Stroke
- PCI/ACVB
- ACS




### Clinical Perspective

#### What Is New?

- REDUCE-IT (Reduction of Cardiovascular Events With Icosapent Ethyl–Intervention Trial) USA found that icosapent ethyl 4 g/d produced large and significant reductions in multiple ischemic end points, including cardiovascular death, myocardial infarction, stroke, coronary revascularization, and hospitalization for unstable angina.
- REDUCE-IT USA demonstrated that icosapent ethyl provided a statistically significant 30% relative risk reduction and 2.6% absolute risk reduction in all-cause mortality.
- The risk-benefit profile of icosapent ethyl was highly favorable, with an overall safety and tolerability profile virtually identical to that of placebo.

#### What Are the Clinical Implications?

- Use of icosapent ethyl in eligible secondary and primary prevention patients would be expected to have a substantial benefit in reducing residual cardiovascular risk.
- Several international guidelines have embraced the REDUCE-IT data, an independent analysis has found it to be highly cost-effective, and multiple registry analyses show the data are generalizable to a large number of patients in typical clinical practice.
- Health care systems should implement the results of REDUCE-IT without delay in order to reduce the burden of initial and subsequent cardiovascular events that patients face with even modestly elevated triglycerides.


APPELLATION POMEROL CONTRÔLÉE
ÂTEAU TROTANOY
POMEROL
1998
450 €
PETRVS
1er des GRANDS CRUS
POMEROL
Grand Vin
1945
APPELLATION CONTRÔLÉE
3290 €
1962
PETRVS
POMEROL
Grand Vin
APPELLATION POMEROL CONTRÔLÉE
2990 €
PETRVS
POMEROL
1975
APPELLATION POMEROL CONTRÔLÉE
2390 €
1985
PETRVS
POMEROL
Grand Vin
1450 €

# Metaanalyse Alkokolkonsum und kardiovaskulärer Outcome

***Ronksley P, et al. BMJ 2011; 342:d671***

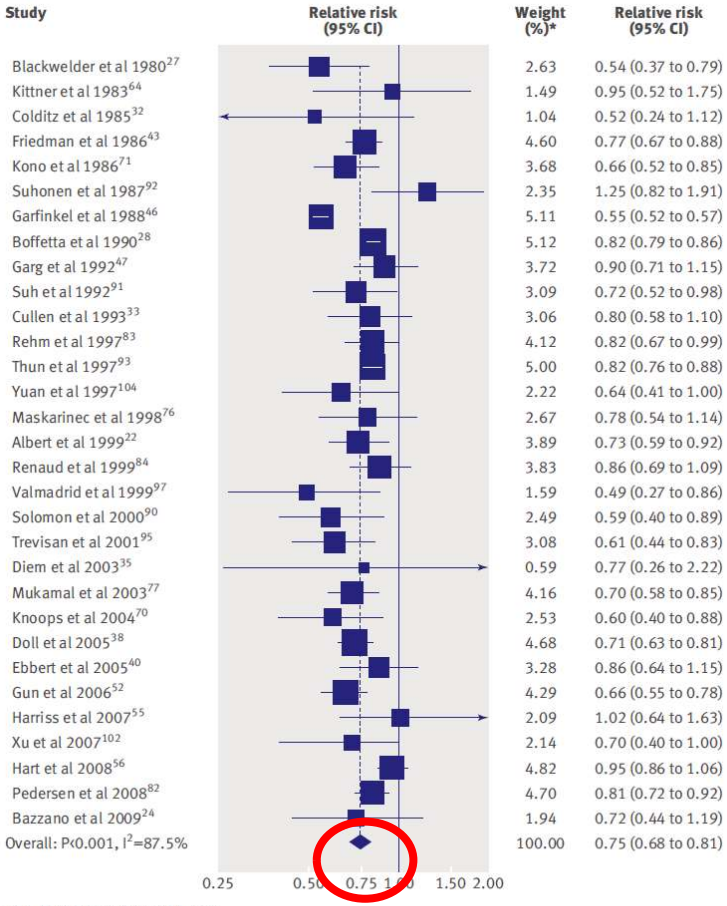



Fig 4| Forest plot of mortality from coronary heart disease associated with alcohol consumption

# Gesundheitsprofil

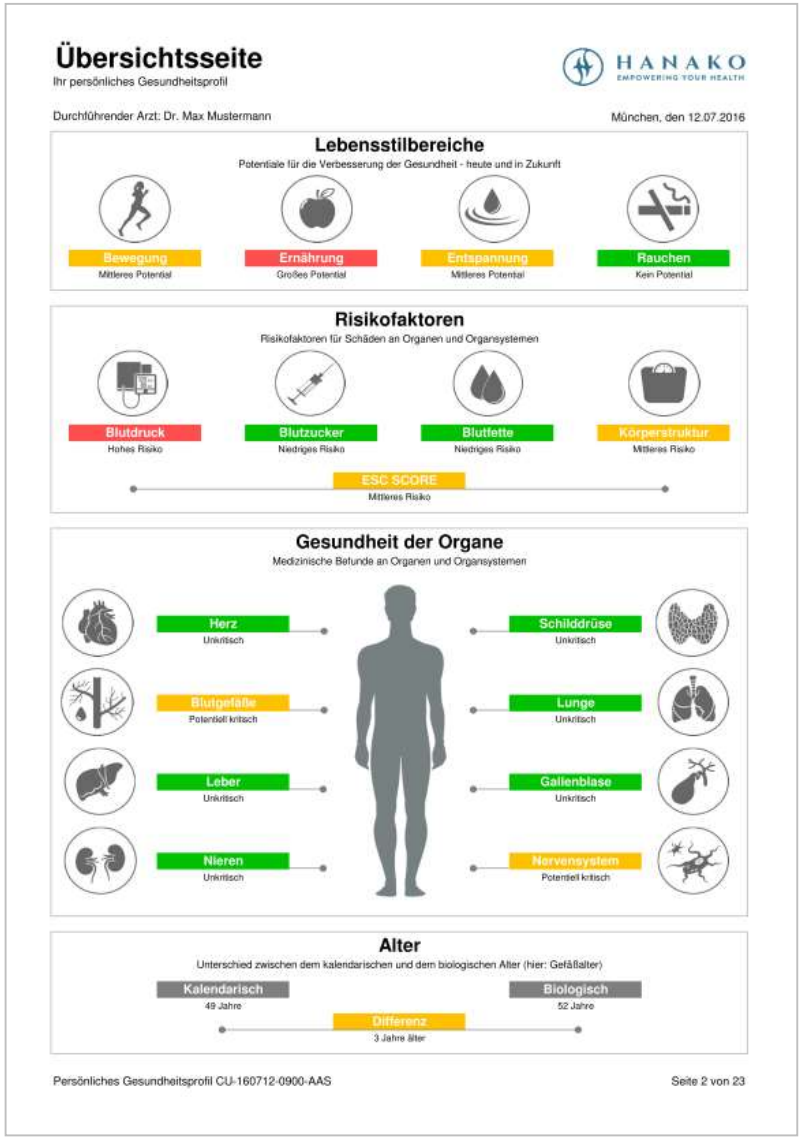
## Hochtransparent. Sofort verfügbar.

**Risikofaktoren**

Erste Manifestation
eines ungünstigen Lebensstils

**Biologisches Alter**

Zusammenfassende Bewertung
des körperlichen Zustands




Übersichtsseite (Hanako Standard)

**Lebensstilbereiche**

Chancen und Risiken
für die körperliche Gesundheit

**Organe**

Finale Manifestation
eines ungünstigen Lebensstils

HANAKO
EMPOWERING YOUR HEALTH

# Gesundheits-App

## Persönlicher Gesundheits- und Lebensstilbegleiter.

Die Gesundheits-App unterstützt als **steter personalisierter Begleiter** bei der nachhaltigen Verbesserung der eigenen Gesundheit.

- **Multimediale Darstellung** aller Ergebnisse und Empfehlungen zu Gesundheit und Lebensstil
- Integrierte **digitale Angebote** zur Lebensstilverbesserung
- Zusammenführung aller **betrieblichen Gesundheitsangebote** – **personalisiert** und **standortspezifisch**
- Schaffen von **Motivation** und **langfristigem Engagement** durch Herausforderungen und Wettbewerbe
- Förderung nachhaltiger Verhaltensänderung durch **Habit-Formation**




HANAKO
EMPOWERING YOUR HEALTH

# das tor

düsseldorfer jonges

Monatszeitschrift der
Düsseldorfer Jonges
08 · 2021 · 87. Jahrgang

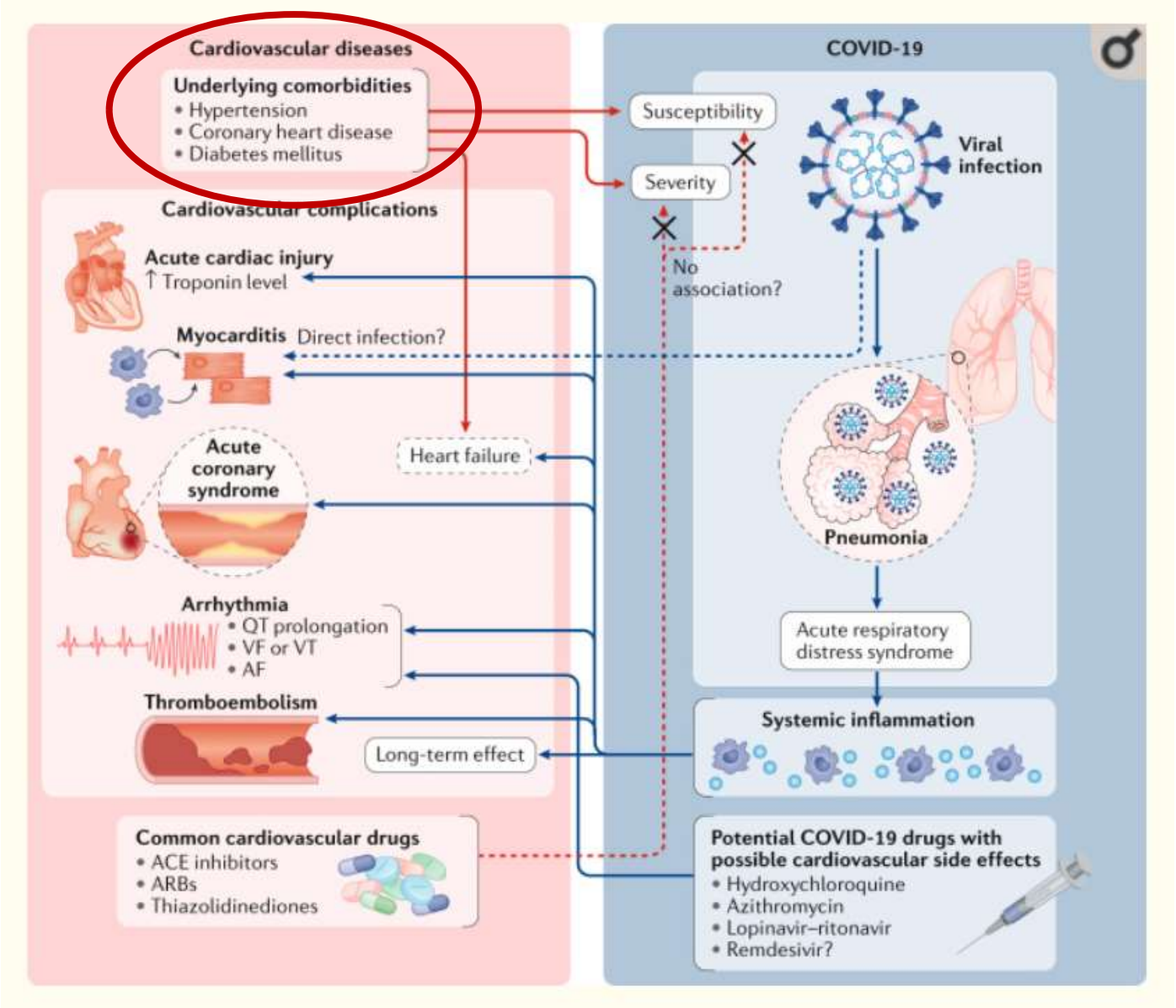

# Irgendwann soll es „klick“ machen

## Professor Uwe Nixdorff beschreibt den Weg zu einem langen Leben

### Prof. Dr. med. Uwe Nixdorff

- Prof. Dr. med. Uwe Nixdorff ist 63 Jahre alt, fühlt sich aber wie 43. Zusammen mit seiner Frau lebt der im Taunus geborene Mediziner in Bilk. Das Paar hat zwei Kinder.
- Die ärztliche Ausbildung zum Internisten, Kardiologen und Sportmediziner hat ihn nach dem Studium in Frankfurt unter anderem nach Johannesburg, ins Bundeswehr-Krankenhaus Gießen, ins Deutsche Herzzentrum München in die Universitätsklink Mainz und nach Chicago geführt.
- Als außerplanmäßiger Professor lehrt er an der Universität Erlangen-Nürnberg.
- 2005 hat er das „European Prevention Center“ gegründet. Im Düsseldorfer Medical Center führt er auch eine kardiologische Privatpraxis.
- Nixdorff ist Rechtsritter der Johanniter-Ordens.
- Seit 2019 ist der Düsseldorfer Jong und Mitglied der Tischgemeinschaft „Kinn Ziet“.
- „Mein Hobby ist mein Beruf“, sagt er.


HANAKO
EMPOWERING YOUR HEALTH




# Bidirektionale Interaktion zwischen Kardiovaskulärer Krankheit und COVID-19

***Nishiga M, et al. Nat Rev Cardiol 2020; 20:1-16***

Mortality x 11 by CV involvement

*Shi S, et al. JAMA Cardiol 2020; doi: 10.1001/jamacardio.2020.0950*

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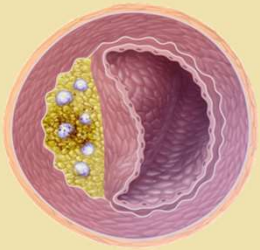
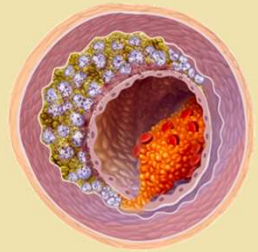


# Zusammenfassung



- Grundlage der CV Prävention: Pathophysiologie der vulnerablen Plaque / atherosklerotisches Kontinuum
- Risikofaktoren-Stratifikation mittels Score-Modellen und Berücksichtigung deren Lebensstilinduktion (kardiometabolisches Syndrom / Anthropometrie)
- Früherkennung mittels Bildgebung
- Behavioristische Lebensstilmodifikation (1. Bewegung, 2. Ernährung, 3. Entspannung; zudem Suchtverhalten) >>> präventive Pharmakotherapie (Statine, ASS, Antiinflammation; evidente  Supplementierung: Vitamin D, Omega-3 Fettsäuren, etc.)
- Präventionsziel (INTERHEART 2004): Prinzipiell > 80% der MI vermeidbar, da kausale Risiken erkannt und intervenierbar!
- Zukunft personalisierte und digitalisierte Präventionsmedizin

# Vielen Dank ...

# ...für Ihre Aufmerksamkeit


Modified to Jim Dine: „The World“, 1972