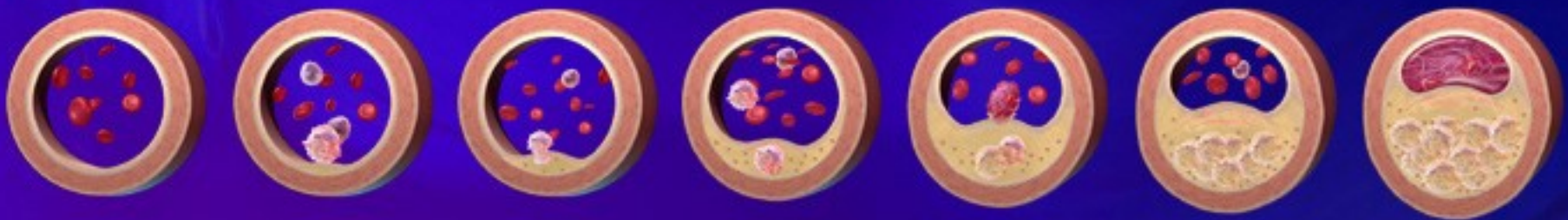
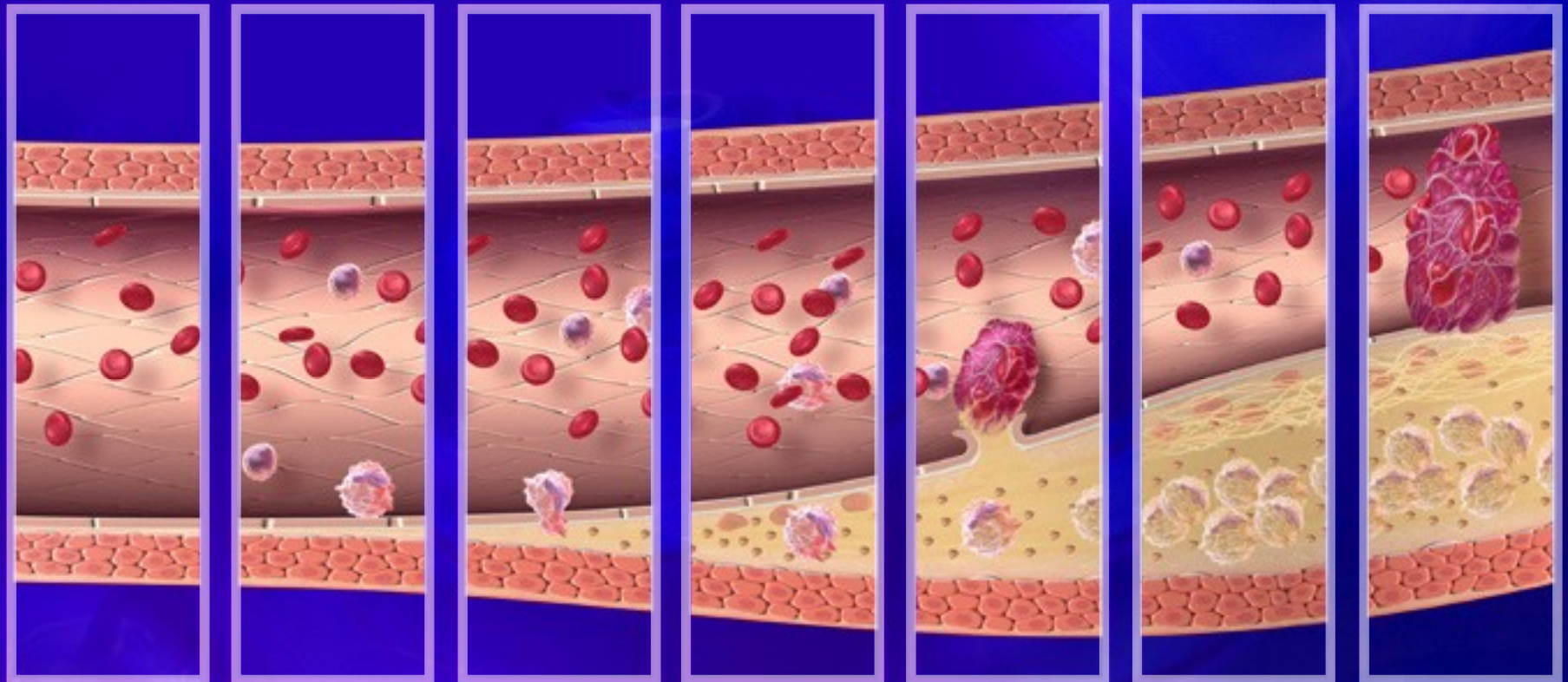


# ***How to Avoid Needing a Cardiologist***

***Steven L Schwartz, MD,  
FACC***

***Foundation Cardiology  
Tufts University School of Medicine***

# Atherosclerotic Plaque Pathogenesis



1

2

3

4

5

6

7

# Atherosclerotic Vascular Disease

- *CAD: Angina pectoris, myocardial infarction (heart attack)*
- *Peripheral arterial disease*
- *Chronic Kidney disease*
- *Cerebrovascular disease, stroke*

# Prevention

- *Primary prevention: avoiding the 1<sup>st</sup> episode of disease*
- *Secondary prevention: disease already present, avoiding repeat episode or worsening*

# CHD Risk Factors

## Modifiable

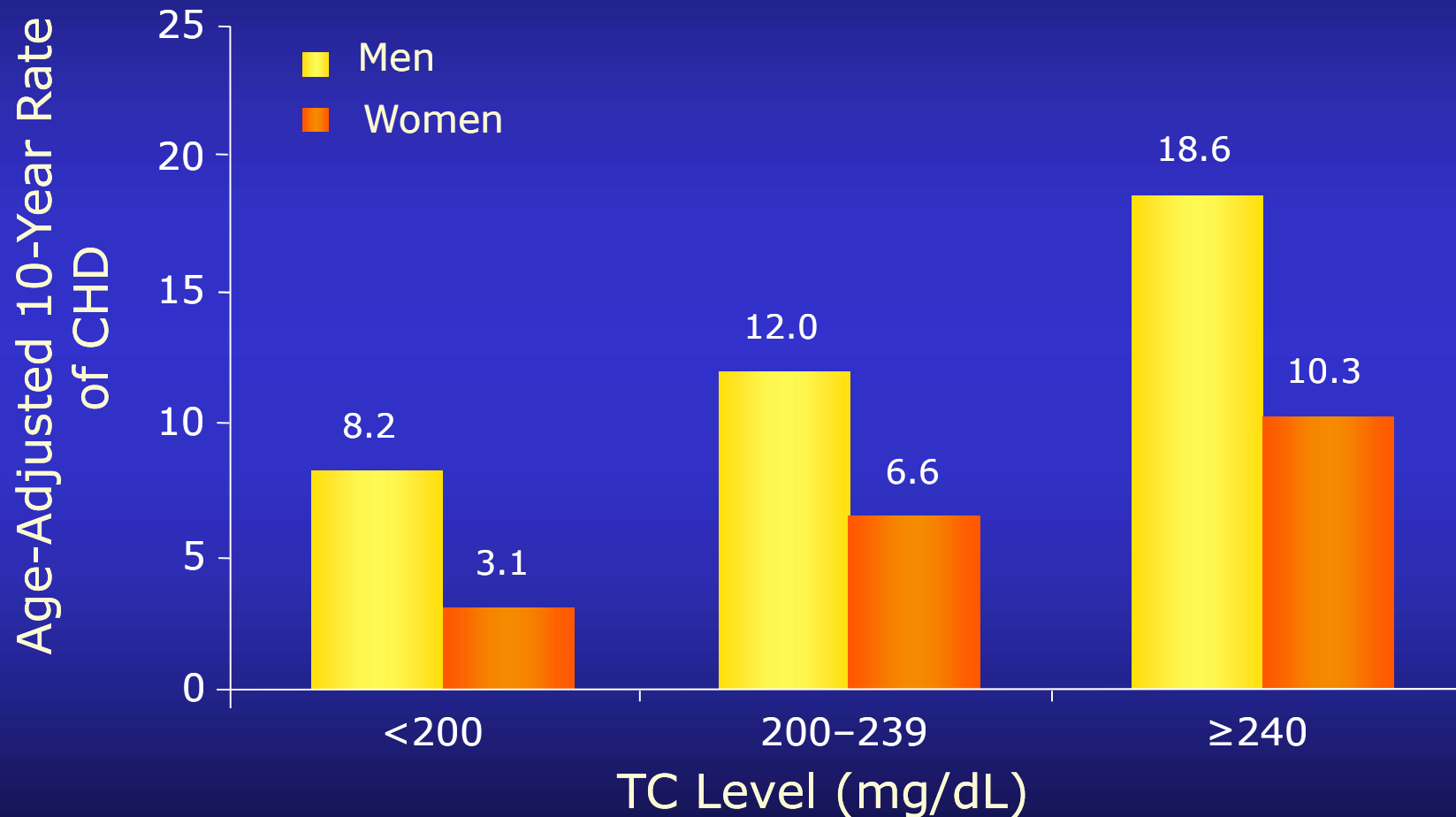
- Dyslipidemia
- Cigarette smoking
- Hypertension
- Diabetes mellitus
- Obesity
- Sedentary lifestyle

## Nonmodifiable

- Advancing age
  - Men  $\geq 45$  years
  - Women  $\geq 55$  years
- Male gender
- Family history of premature CHD

# Framingham Heart Study

## Relation of TC to CHD Risk

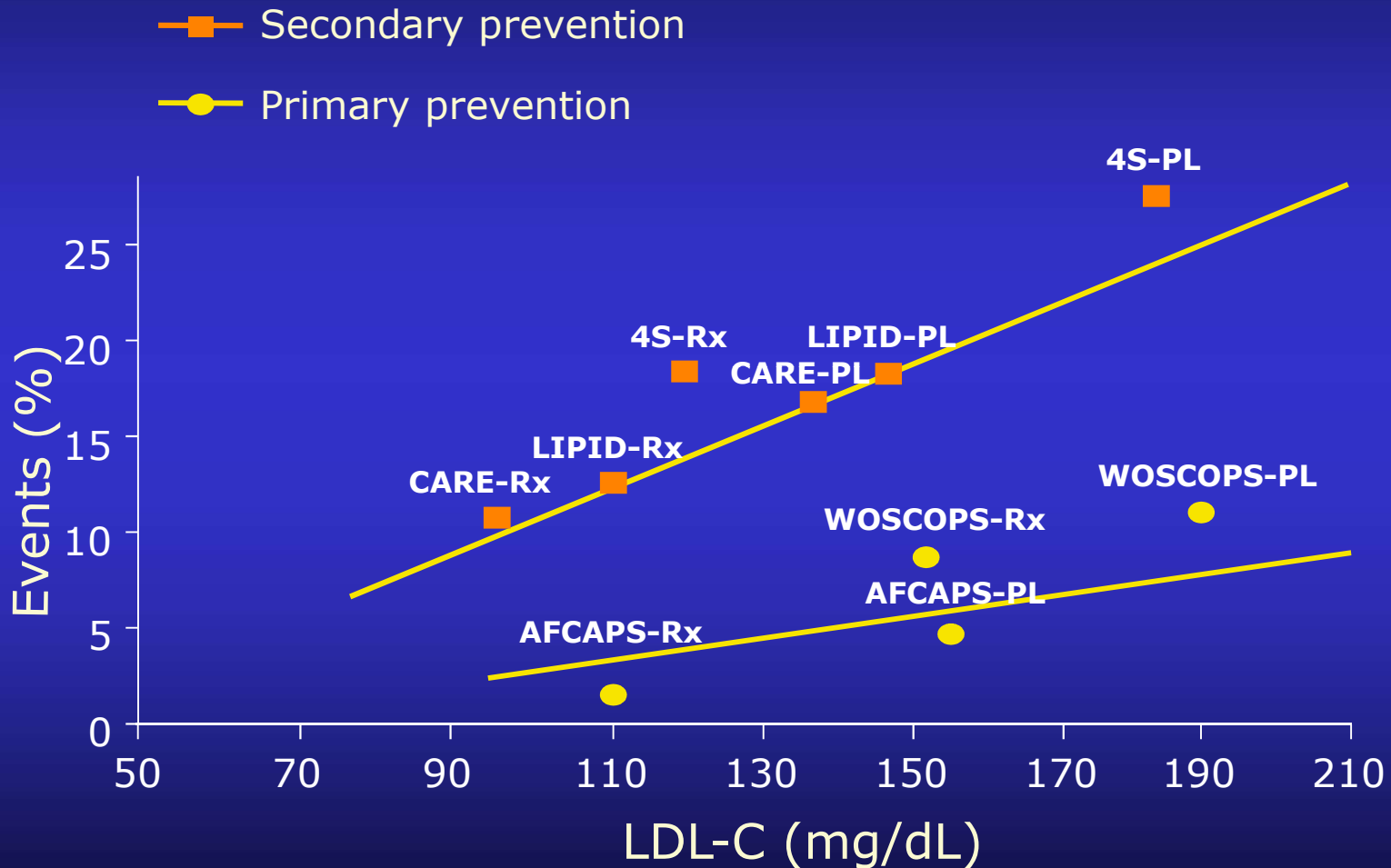


Wilson PWF, et al. *Circulation*. 1998;97:1837-1847.

# Cholesterol

- *Total cholesterol*
- *High Density Cholesterol*
- *Low Density Cholesterol*
- *Triglycerides*

# LDL-C Lowering With Statins



PL, placebo groups; Rx, treatment groups.

Adapted with permission from Illingworth DR. *Med Clin North Am.* 2000;84:23-42.



## How low should my LDL cholesterol be?

- *The lower the better*
- *LDL targets depend upon baseline risk*
- *There is no such thing as LDL level being too low*

# Risk of ASHD event

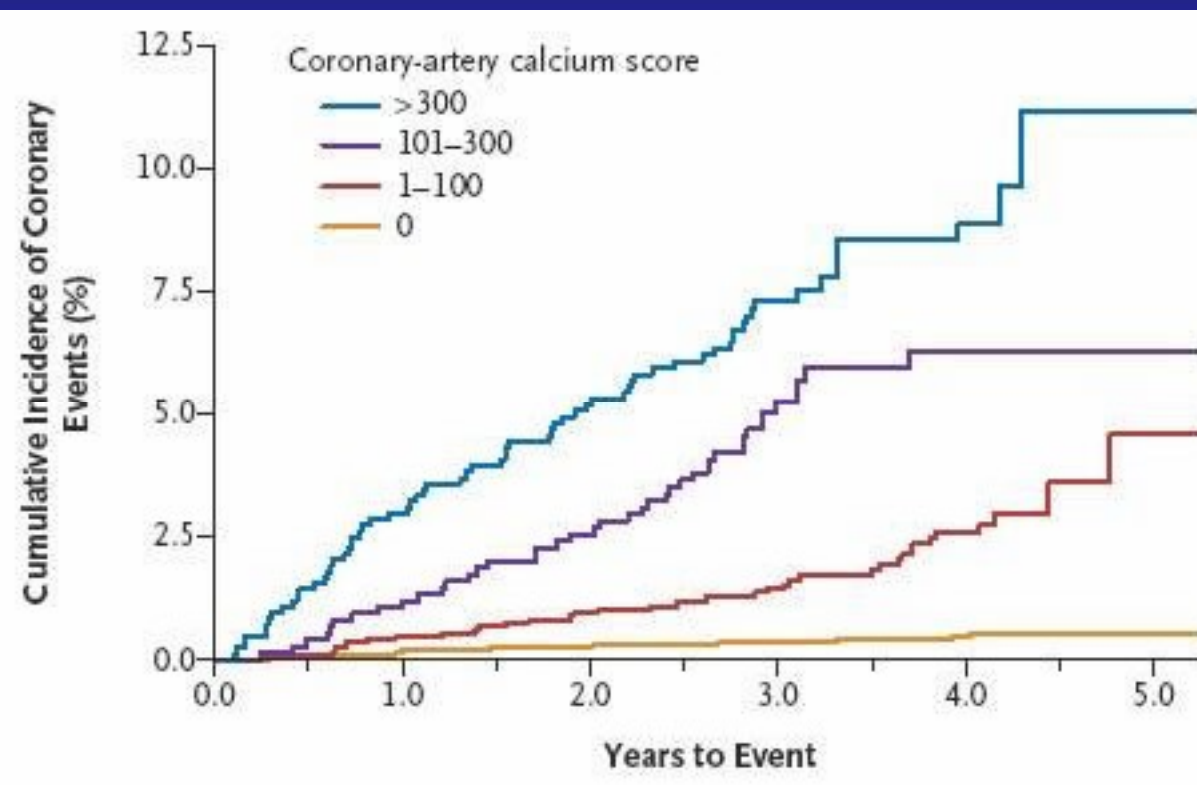
- *Age*
- *Sex*
- *Diabetes*
- *Tobacco use*
- *Blood pressure*
- *Cholesterol levels*

## **10 yr risk Risk of ASHD event**

- ***< 5% : low risk***
- ***5% - 7.5%: borderline***
- ***7.5 – 20% : high risk, treat to LDL < 100 or 30% reduction of baseline***
- ***> 20%, prior event, or multiple risk factors: very high risk. Target LDL < 70 or 50% reduction of baseline. Target < 50 for highest risk***

5442-7





# Metabolic Syndrome as a Secondary Target: Clinical Identification

## Risk Factor

## Defining Level

### Abdominal obesity (waist circumference)

Men

>102 cm (>40 in)

Women

>88 cm (>35 in)

### Triglycerides

≥150 mg/dL

### HDL-C

Men

<40 mg/dL

Women

<50 mg/dL

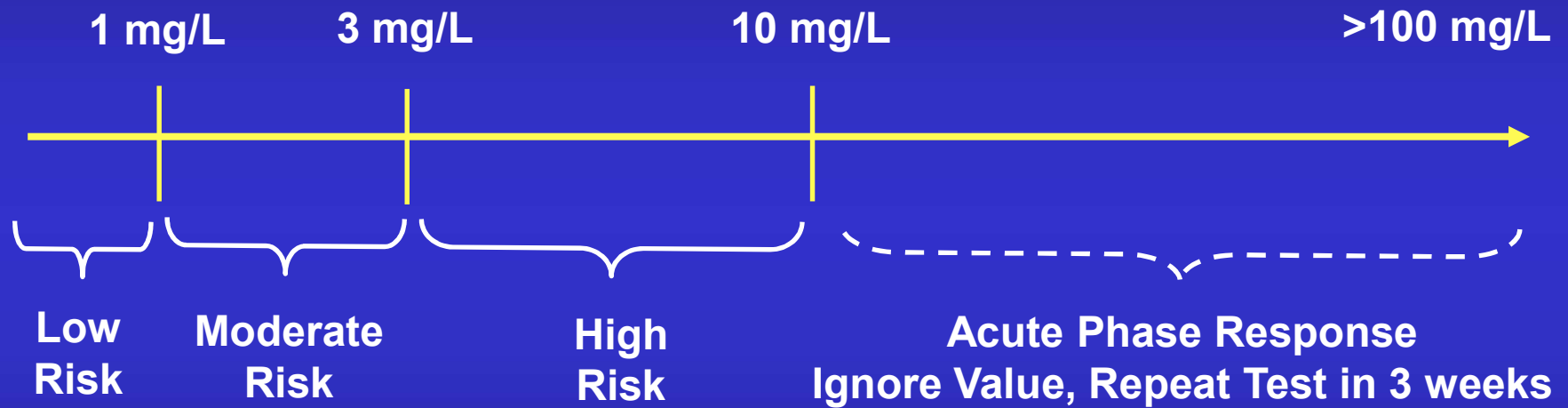
### Blood pressure

≥130/≥85 mm Hg

### Fasting glucose

≥110 mg/dL

# Clinical Application of hs-CRP for Cardiovascular Risk Prediction



# Treatment

- *Healthy diet, exercise*
- *Statin medications*
- *Ezetamibe*
- *Bemepedoic acid*
- *PCSK9 inhibitors*

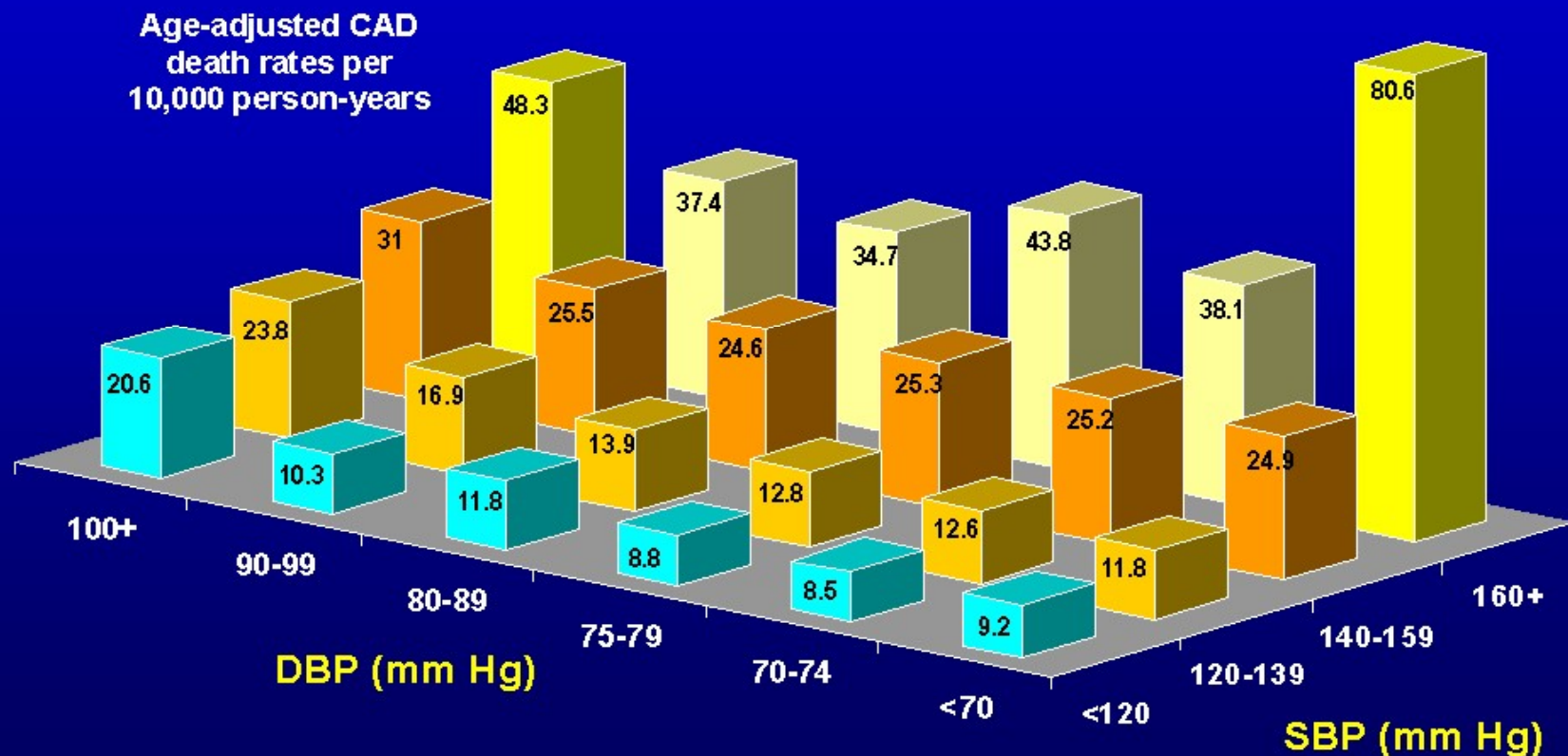


# Cholesterol Lowering Medication

- *Well tolerated*
- *Reduce risk of MI, stroke, death by 20 – 25%*
- *Muscle aches / pains 5 – 10%*
- *Rhabdomyolysis, liver disease rare*
- *Trials of statin intolerant patients: 30% are intolerant of placebo*



# Increasing SBP Linked to CHD Risk



Adapted from Neaton JD, et al. *Arch Intern Med.* 1992;152:56-64.

# Complications of Hypertension

- *Coronary disease*
- *Heart Failure*
- *Chronic Kidney disease*
- *Cerebrovascular disease, stroke*
- *Peripheral arterial disease*

# Blood Pressure Classification

BP Classification	SBP mmHg		DBP mmHg
Normal	<120	and	<80
Elevated BP	120–129	or	80–89
Stage 1 Hypertension	130-139	or	80-89
Stage 2 Hypertension	≥140	or	≥90

# Treatment of Hypertension

- *Prior CV event, DM <130/80*
- *Risk > 10% < 130/80*
- *Risk < 10% < 140/90*

## Benefits of Treating Systolic BP

---

- An average reduction of 12-13 mm Hg in SBP is associated with a
  - 21% reduction in coronary heart disease
  - 37% reduction in stroke
  - 25% reduction in total cardiovascular mortality
  - 13% reduction in all-cause mortality

# Treatment of Hypertension

- *Weight loss, exercise, low sodium diet*
- *Medication*
- *Diuretics*
- *Calcium channel blockers*
- *Renin / aldosterone/ angiotensin inhibitors*
- *Beta blockers*



# Treatment of Hypertension

- *All agents work*
- *Most people need 2 or more drugs*
- *Tailor therapy to the individual and other medical problems*

# Improving Cardiovascular Risk

- **Lifestyle Modification**
  - **Diet**
  - **Exercise**
  - **Avoid tobacco**
  - **Moderate alcohol consumption**
- **Medication**



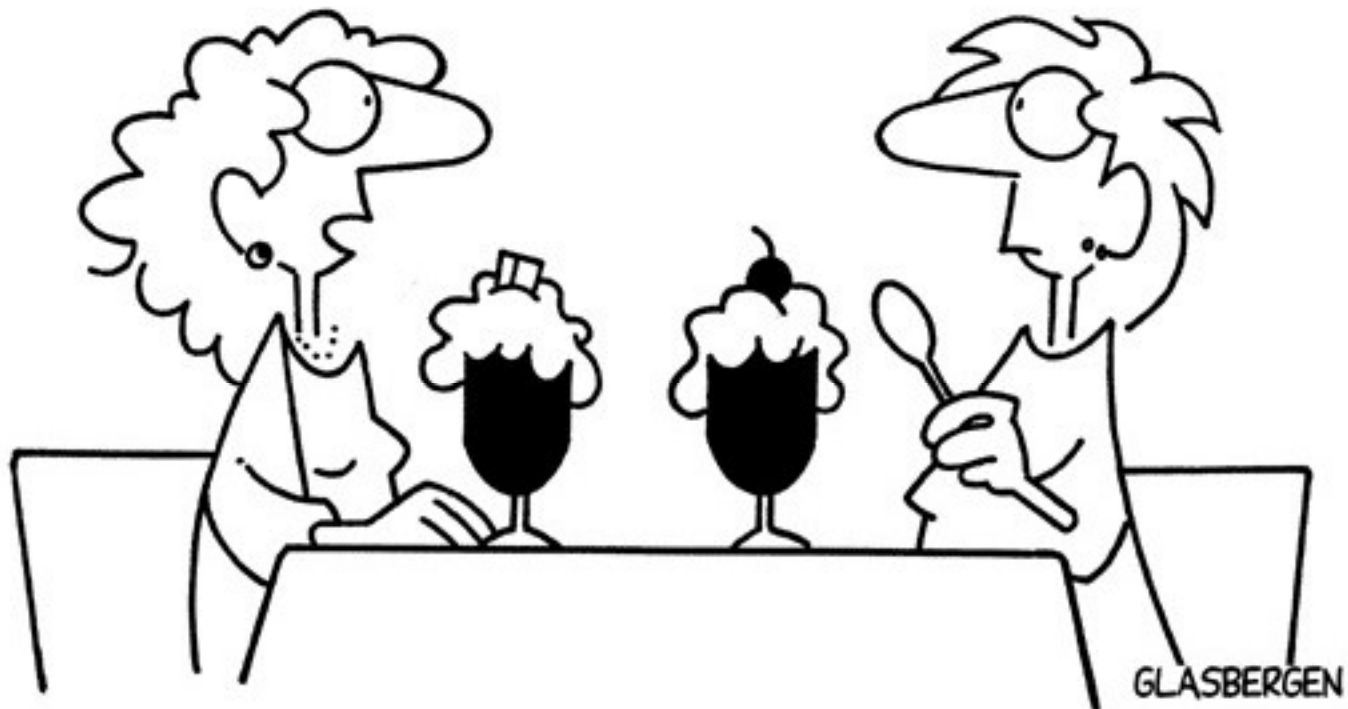
# **How and Why to Keep Your New Year's Resolution**

# **Diet and Cardiovascular Risk Profile**

*We decide our risk for developing coronary artery disease 21 times per week.*

*W. Roberts*

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[www.glasbergen.com](http://www.glasbergen.com)



**“If you put a crouton on your sundae  
instead of a cherry, it counts as a salad.”**

# Carbohydrates

## Low Glycemic Index

- Fruits
- Vegetables
- Beans, Legumes
- Low fat yogurt
- High fiber content

## High Glycemic Index

- Bread
- Pasta
- Rice
- Potato
- Low fiber content

# Protein

- **White meat chicken, turkey**
- **Fish**
- **Low fat or non fat dairy**
- **Lean pork**
- **Veal**
- **Lean beef**

# Fats

## Good Fats

- Monounsaturated, polyunsaturated
- Raise HDL
- Olives, olive oil
- Nuts
- Canola oil
- Fish oil

## Bad Fats

- Saturated, trans-
- Raise LDL
- Animal fats
- Tropical oils



## Diet and Cardiovascular Risk Profile

	Atkins	Ornish	WtW	Zone
<b>Compl</b>	<b>52%</b>	<b>50%</b>	<b>65%</b>	<b>65%</b>
<b>Wt</b>	<b>-3.9%</b>	<b>-6.2%</b>	<b>-4.5%</b>	<b>-4.6%</b>
<b>FRS</b>	<b>-12.3%</b>	<b>-6.6%</b>	<b>-14.7%</b>	<b>-10.5%</b>
<b>LDL</b>	<b>-8.6%</b>	<b>-16.7%</b>	<b>-7.7%</b>	<b>-6.7%</b>
<b>HDL</b>	<b>14.6%</b>	<b>2.2%</b>	<b>18.5%</b>	<b>15.4%</b>

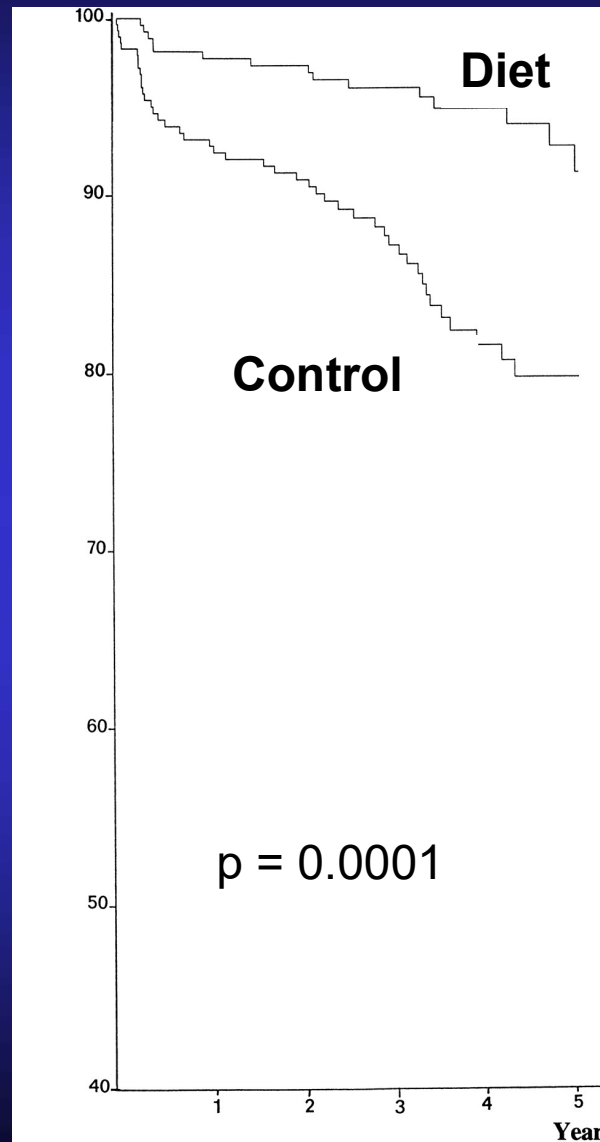
*Dansinger et al, AHA 2003*

# **Mediterranean Diet**

- *Fruits, vegetables, legumes, whole grains*
- *Fish, poultry, beans, eggs*
- *Moderate amount of dairy products*
- *Limited red meat*

# Mediterranean Diet

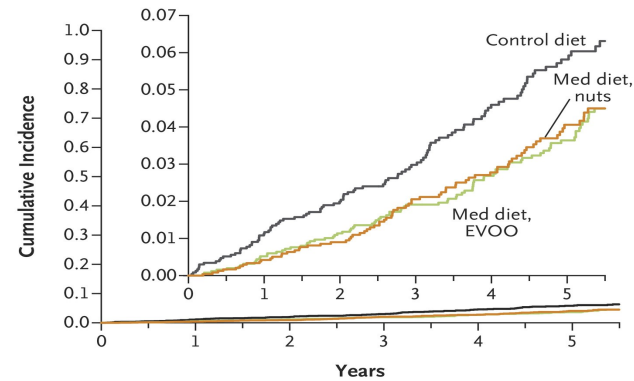
Event  
Free  
Survival



*Lorgeril et al.  
Circulation 1999*

**A Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)**

Med diet, EVOO: hazard ratio, 0.69 (95% CI, 0.53–0.91)  
 Med diet, nuts: hazard ratio, 0.72 (95% CI, 0.54–0.95)

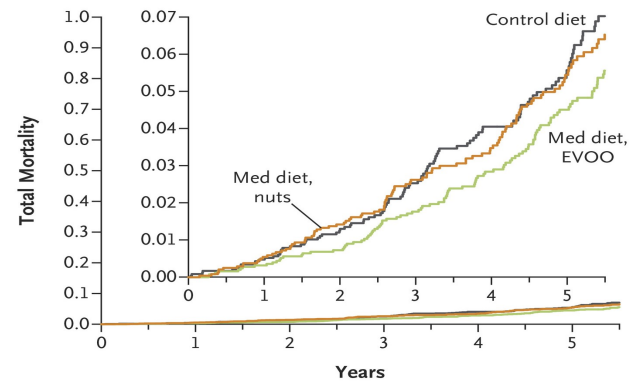


**No. at Risk**

Control diet	2450	2268	2020	1583	1268	946
Med diet, EVOO	2543	2486	2320	1987	1687	1310
Med diet, nuts	2454	2343	2093	1657	1389	1031

**B Total Mortality**

Med diet, EVOO: hazard ratio, 0.90 (95% CI, 0.69–1.18)  
 Med diet, nuts: hazard ratio, 1.12 (95% CI, 0.86–1.47)



**No. at Risk**

Control diet	2450	2270	2027	1586	1272	949
Med diet, EVOO	2543	2486	2324	1991	1691	1310
Med diet, nuts	2454	2345	2097	1662	1395	1037

*Predimed trial, NEJM 2018*

THE *NEW YORK TIMES* BESTSELLER



# FORKS OVER KNIVES

## THE COOKBOOK

OVER 300 RECIPES FOR PLANT-BASED  
EATING ALL THROUGH THE YEAR



COMPANION  
TO THE LANDMARK  
DOCUMENTARY  
AND THE #1  
NEW YORK TIMES  
BESTSELLER

DEL SROUFE

WITH CHARLIE MISKOWITZ  
AND JESSICA KAPLAN

# ***Plant Based Diets***

- ***Lower Calories***
- ***Reduce obesity***
- ***Improve cholesterol profile***
- ***Challenge is protein intake***

# **Common Factors to all Eating Plans**

- **They only work if you stick to them**
- **No sweets**
- **Minimize high glycemic carbohydrates**
- **Restrict caloric intake**
- **Portion control**



**Non - fat foods**





# **Benefits of exercise**

- **Weight reduction**
- **Lowers LDL cholesterol**
- **Raises HDL cholesterol**
- **Lowers CRP**
- **Increases anti – oxidants**
- **Improved efficiency of skeletal muscles**

# Benefits of Exercise

## *Lowers risk*

- **Diabetes**
- **Coronary disease**
- **Hypertension**
- **Osteoporosis**
- **Arthritis**
- **Sudden Cardiac Death**

## How much exercise?

- Aerobic exercise: > 150 minutes moderate activity or 75 minute vigorous activity per week
- Resistance exercise: at least twice per week

# Aging

- Reduction in skeletal muscle mass
- Reduction in basal metabolic rate
- If you weigh the same at age 60 as age 30, your body fat content is higher, waste is larger, and clothes will not fit

# **Aerobic Exercise**

- **Burns calories**
- **Lowers LDL, raises HDL**
- **Improves cardiovascular fitness and skeletal muscle efficiency**
- **150 minutes / week**
- **Maintain 65% predicted max HR (appx 110-120)**
- **Example - brisk walk**

# **Resistance Exercise**

- **Maintains or improves muscle mass**
- **Raises basic metabolic rate**
- **Reduction in body fat**
- **Reduces falling**
- **At least 2 x week**
- **Don't forget to stretch**

# **I have no time**

- ***Make time***
- ***Break it up, everything counts***
- ***3 ten minute walks = one 30 minute walk***



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**“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”**



# Alcohol

- **Apparent benefit from low – moderate alcohol consumption\***
- **1 – 2 drinks per day**
- **4-6 oz wine, 12 oz beer, 1 oz hard liquor**
- **Calories, dependence, liver disease, heart disease**
- **Cancer risk**



## **Tobacco / Nicotine**

- *Harmful in any form, ie smoking, vaping, smokeless*
- *Number 1 preventable cause of death*
- *Increases blood pressure*
- *Increases inflammatory markers*
- *Increases plaque build up and rupture*

## **Tobacco / Nicotine**

- *Major cause of CAD, PAD, stroke, ED*
- *Tobacco substitutes may be useful as an aide to quitting but long term use is harmful*

## ***How to avoid seeing a cardiologist***

- ***Pick healthy parents***
- ***Avoid aging***
- ***Don't smoke or use tobacco***
- ***Treat hypertension, diabetes***
- ***Exercise regularly***
- ***Healthy diet***

