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Medical Center

Update on the 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease

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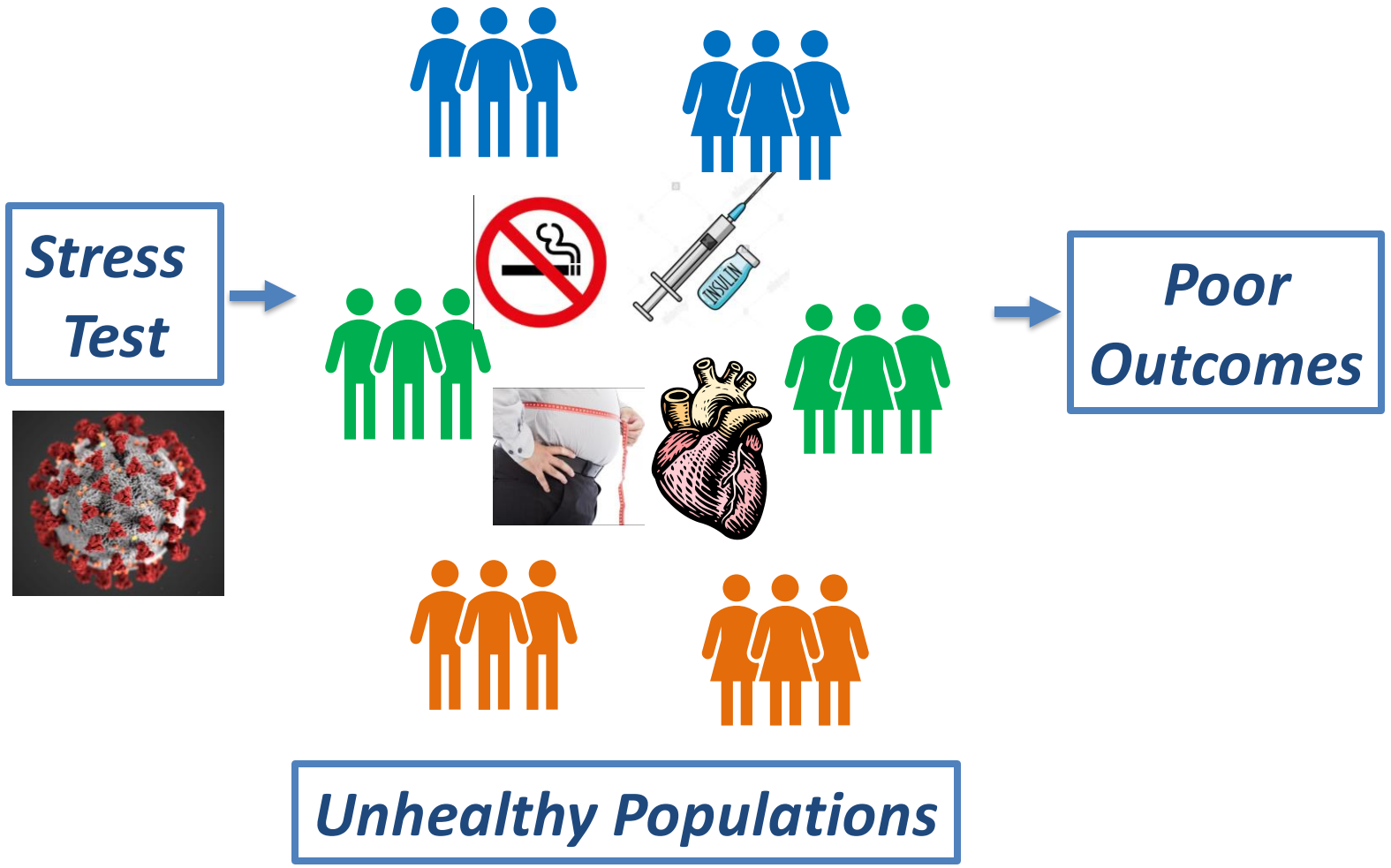
COVID-19 and CVD: Failing the Stress Test



2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease

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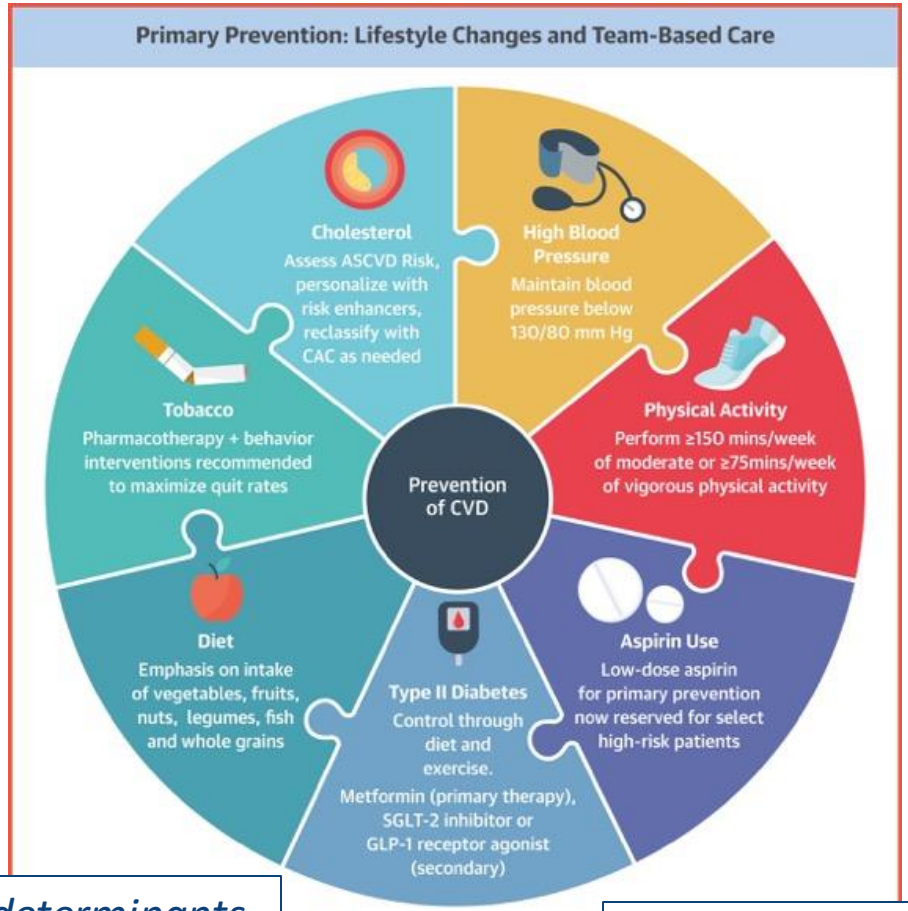
AMERICAN COLLEGE of CARDIOLOGY

American Heart Association.

2019 ACC/AHA Guideline on the Primary Prevention of ASCVD

- **Comprehensive approach to primary prevention of atherosclerotic cardiovascular disease (ASCVD)- heart attack and stroke**
- **Incorporates prior prevention oriented guidelines**
  - **Focusing on primary prevention components**
- **One central resource for clinicians**



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American Heart Association.

Case

62yo male presents for preventive assessment. Father had a heart attack age 62. Fairly sedentary, eats out frequently.

P-80, BP- 132/76, BMI 31 kg/m^2

Meds: None

TC- 194mg/dL, LDL-C-121, HDL-C- 35, Trig- 187,

Glucose- 107mg/dL

10-year estimated ASCVD risk – 13.8%

Case Continued

He and his wife are empty nesters. They eat out 4 nights a week and he also goes out to lunch at work frequently.

You got his attention in mentioning his ASCVD risks, and he is concerned given his father's history of heart disease. He states he heard that the keto and paleo diets may be good options, as well as something about fasting.

How do you approach dietary counseling for him and what do you recommend?

Top 10 Take Home Messages

1. The most important way to prevent atherosclerotic vascular disease, heart failure, and atrial fibrillation is to promote a healthy lifestyle throughout life.

Nutrition Recommendations

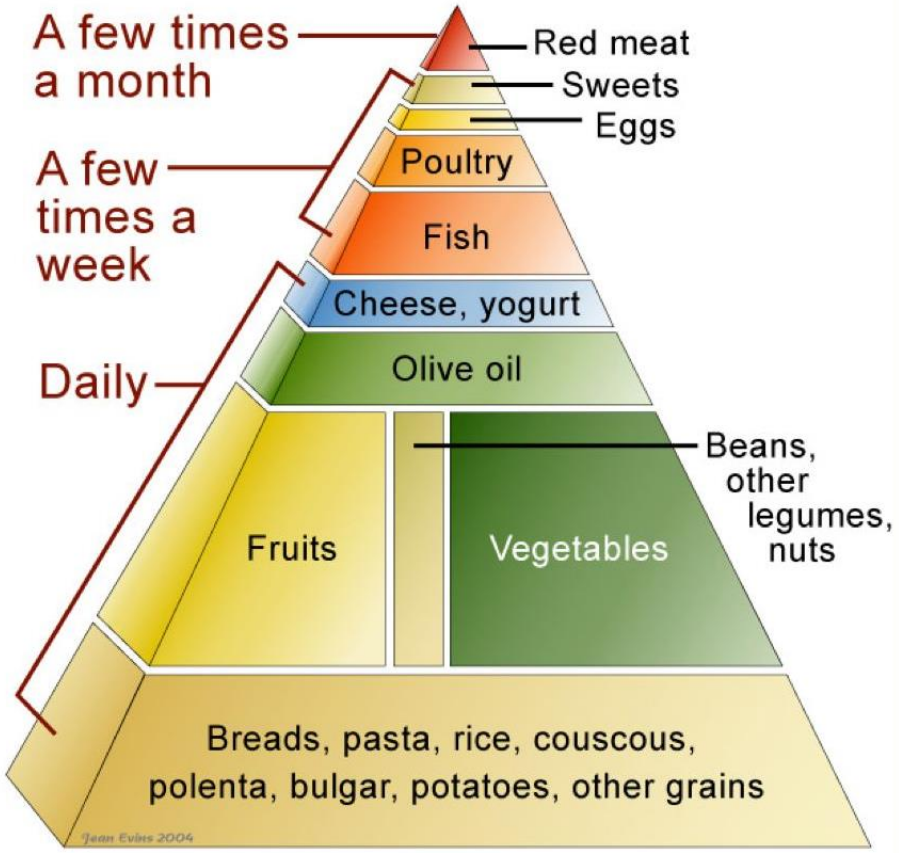
Nutrition and Diet

Recommendations for Nutrition and Diet		
COR	**LOE**	**Recommendations**
I	B-R	1. A diet emphasizing intake of vegetables, fruits, legumes, nuts, whole grains, and fish is recommended to decrease ASCVD risk factors.
IIa	B-NR	2. Replacement of saturated fat with dietary monounsaturated and polyunsaturated fats can be beneficial to reduce ASCVD risk.
IIa	B-NR	3. A diet containing reduced amounts of cholesterol and sodium can be beneficial to decrease ASCVD risk.

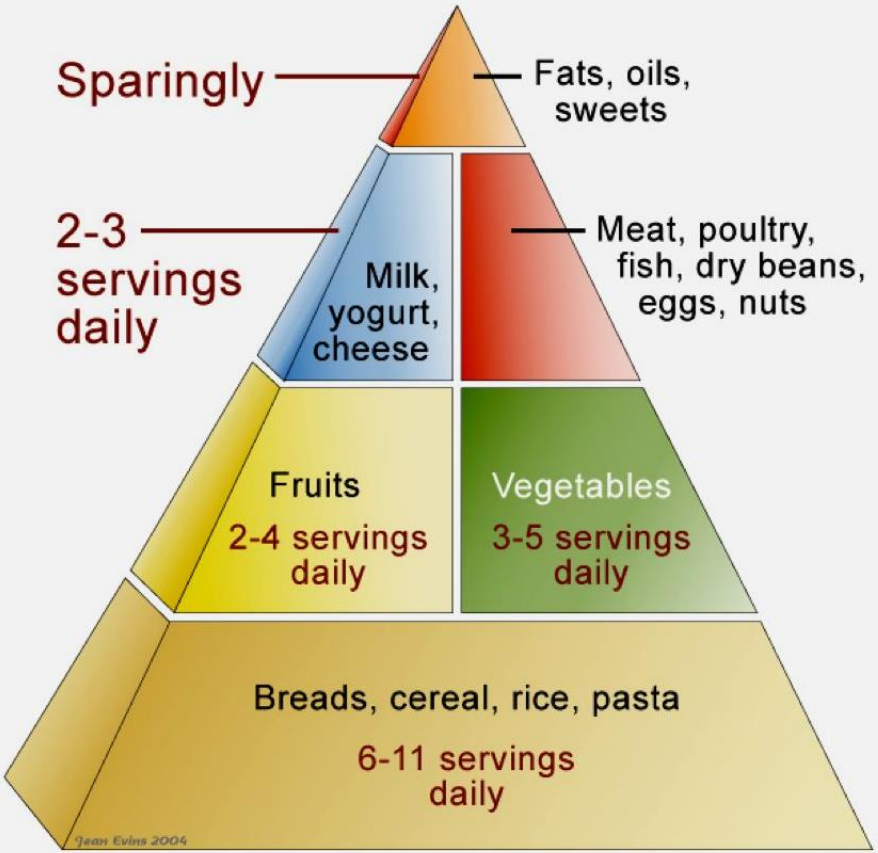
Dietary Intervention: What Is Your Goal?

- Weight Loss
- Improve CV Health
  - CV outcomes (MI/stroke)
  - Risk Factors
    - Lower LDL-C
    - Improve Blood Pressure

Mediterranean Diet vs. USDA Food Pyramid

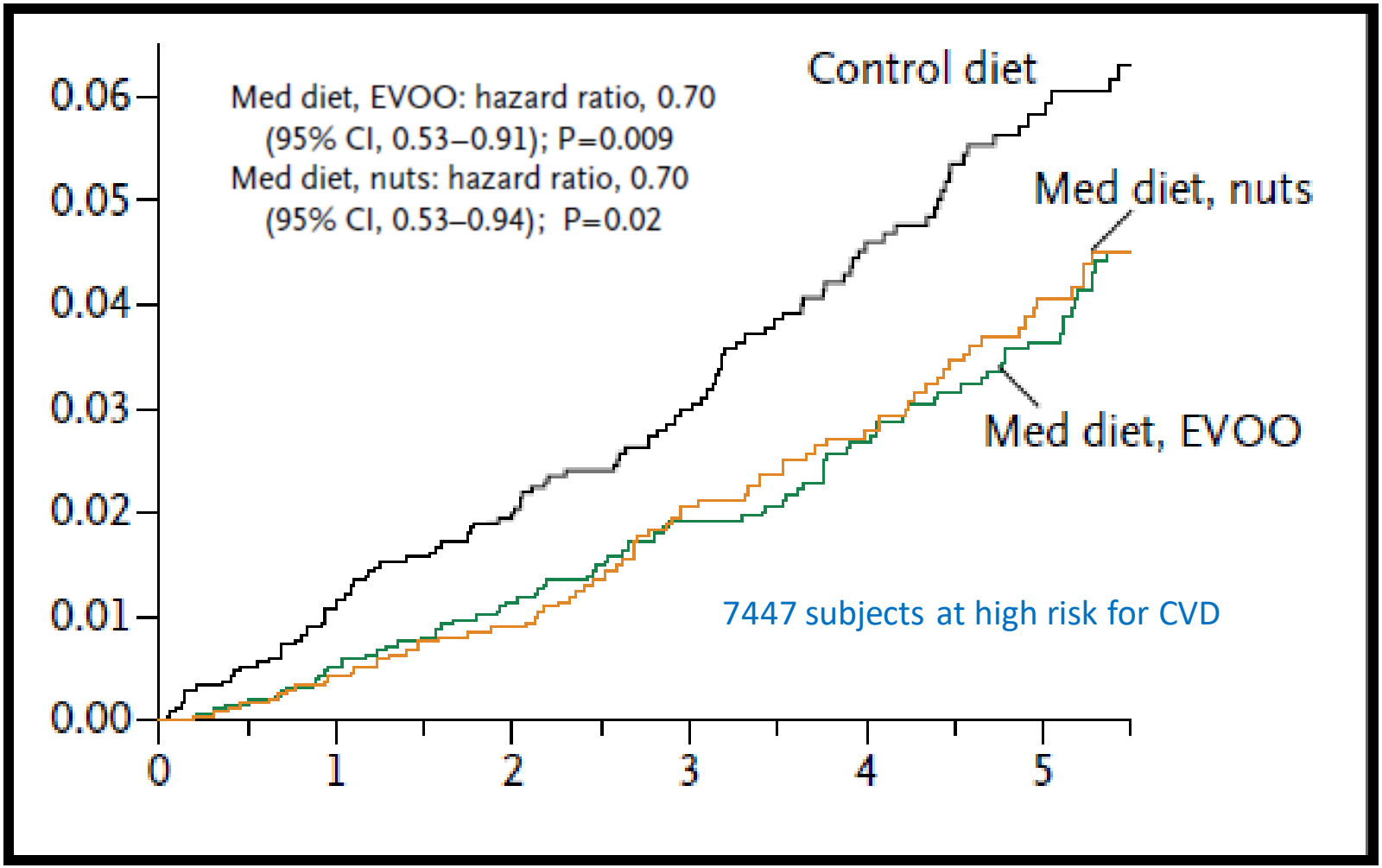


The Mediterranean Pyramid



The USDA Pyramid

Mediterranean Diet and Primary Prevention of CVD: PREDIMED



Estruch R et al. NEJM 2013;368: 1279-1290

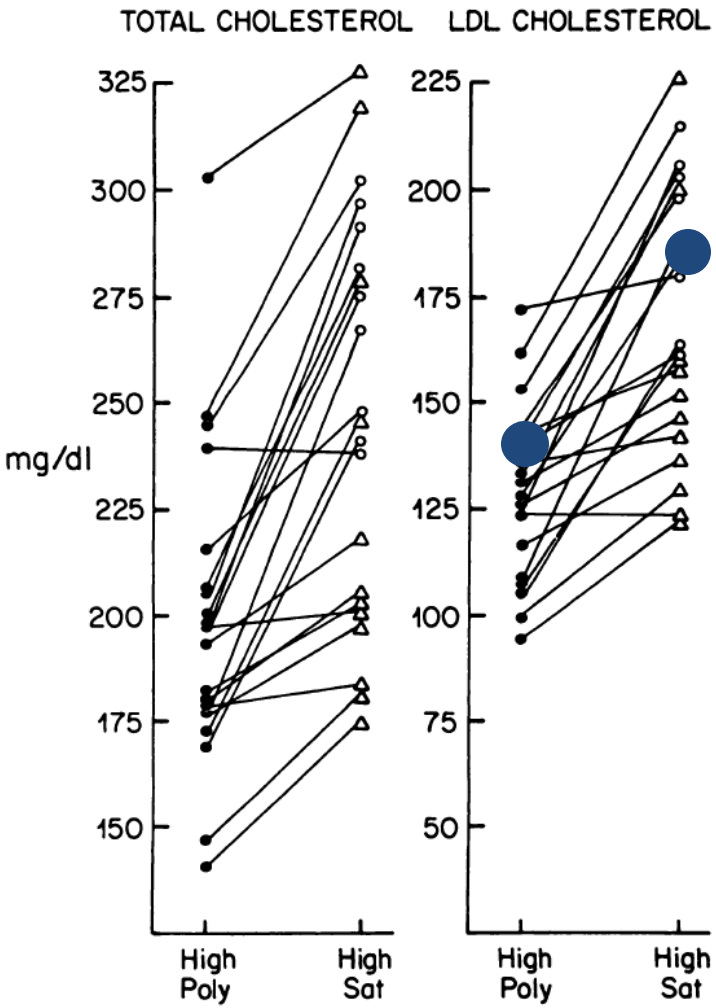
EVOO: 1 L per week

Nuts: 30g/week walnuts, hazelnuts, almonds

Saturated Fat and Blood Cholesterol

N=22

Polunsaturated fat:
Safflower oil
Saturated fat:
Palm oil or lard



Average Δ 42mg/dL

Grundy SM and Vega G. AJCN 1988;47:822-4

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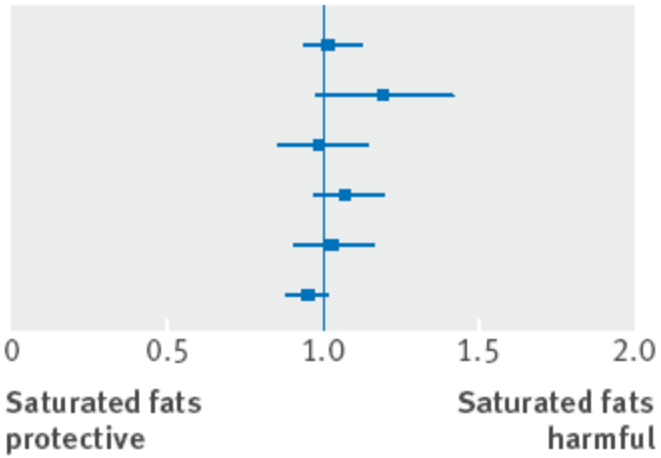
Meta-analysis of Saturated Fat Intake and Heart Disease

Outcome	No of studies /comparisons	No of events /participants	Relative risk (95% CI)	P
All cause mortality	5/7	14 090/99 906	0.99 (0.91 to 1.09)	0.91
CHD mortality	11/15	2970/101 712	1.15 (0.97 to 1.36)	0.10
CVD mortality	3/5	3792/90 501	0.97 (0.84 to 1.12)	0.69
CHD total	12/17	6383/267 416	1.06 (0.95 to 1.17)	0.29
Ischemic stroke	12/15	6226/339 090	1.02 (0.90 to 1.15)	0.79
Type 2 diabetes	8/8	8739/237 454	0.95 (0.88 to 1.03)	0.20



De Souza R et al BMJ 2015;351:1-16.

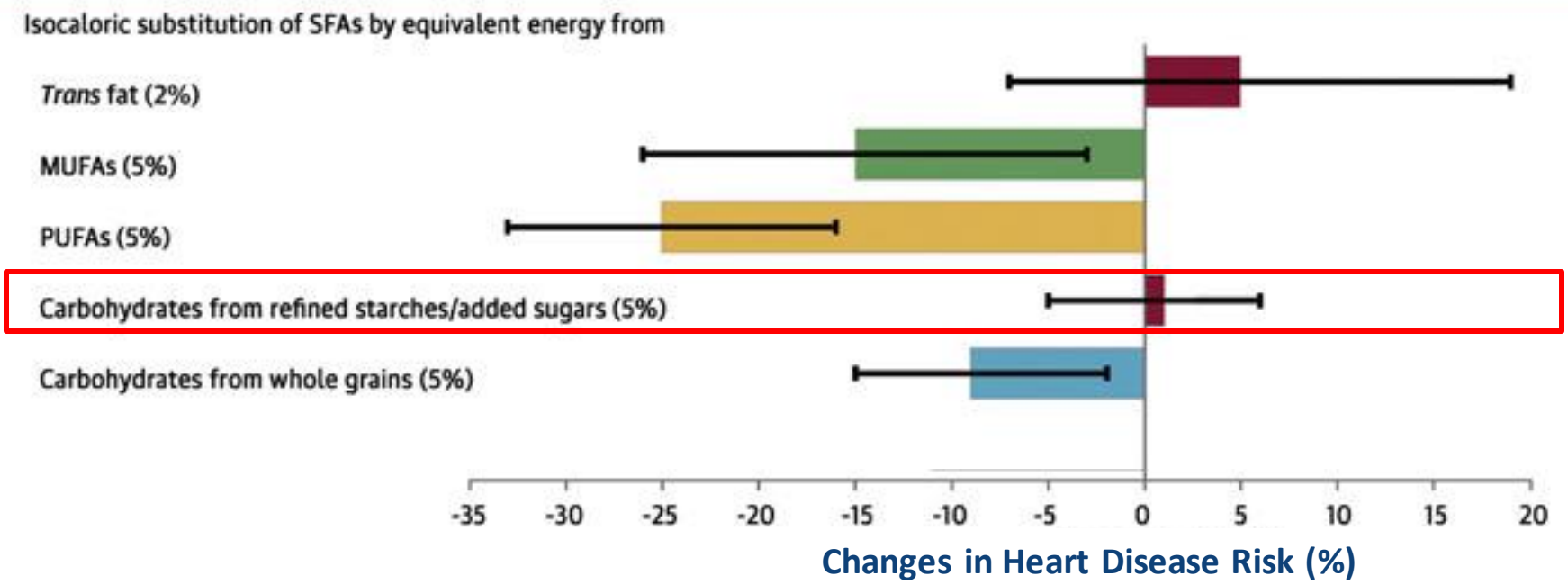
Diet Whack-A-Mole

Saturated Fat

Simple Carbs

Saturated Fat and Heart Disease: How You Replace is Key

84,628 Subjects- Nurses Health Study and Health Professionals Follow-up Study



Diet assessed every 4 years
24-30 years follow up

Li Y et al JACC 2015;66:1538-48.

Exercise Recommendations

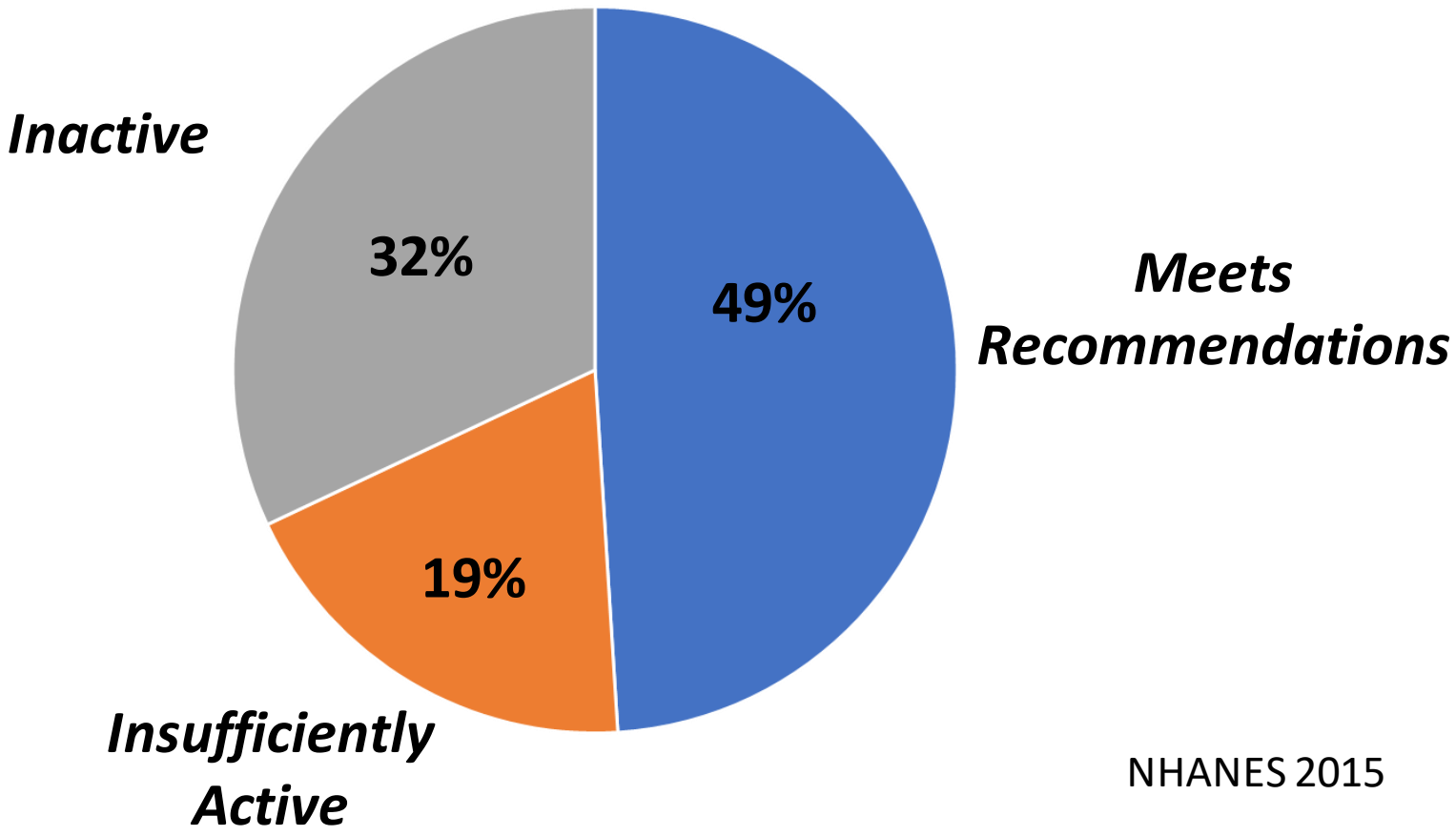
Case Continued

He is motivated for dietary change and the conversation changes to exercise. He wants to know if it is safe for him to exercise.

He is also not sure if walking does any good, or if he needs to get his heart rate up, maybe with interval training.

What do you tell him about these questions?

Current Physical Activity Recommendation Achievement



NHANES 2015

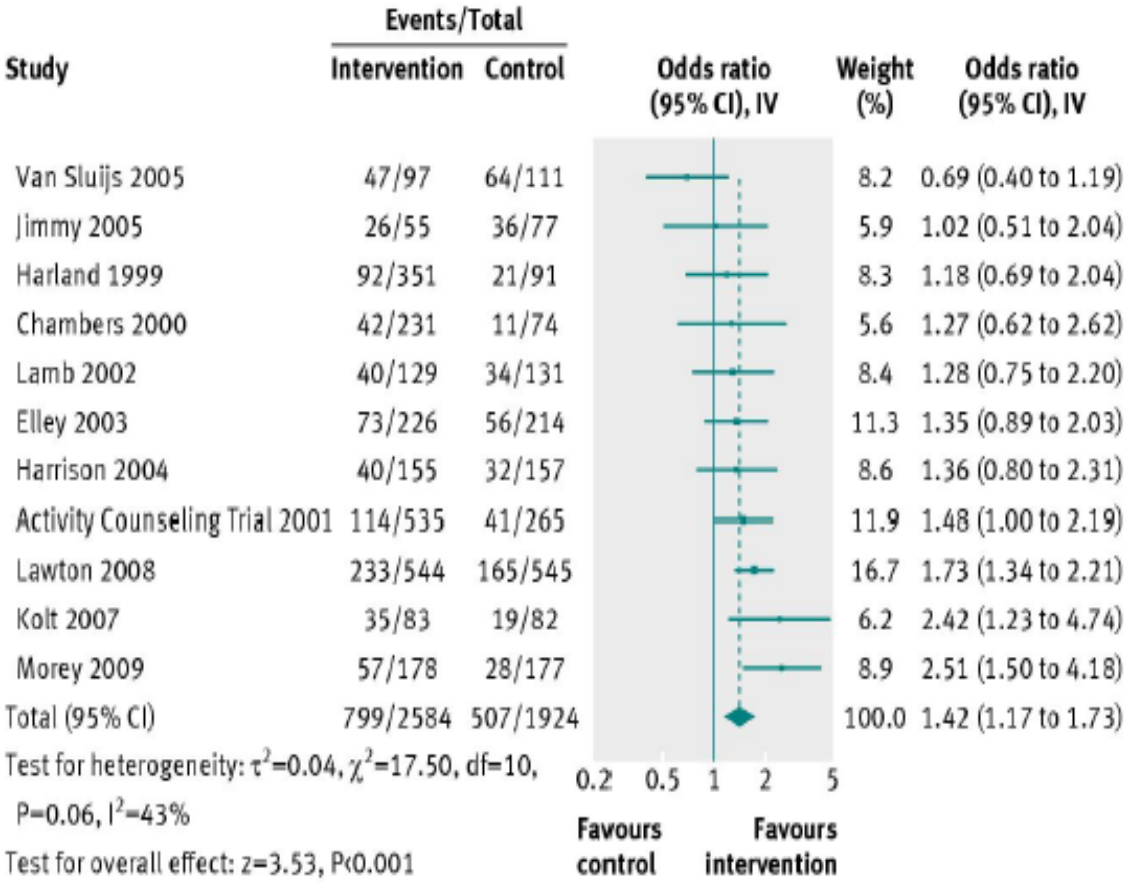
Exercise and Physical Activity

Recommendations for Exercise and Physical Activity		
COR	**LOE**	**Recommendations**
I	B-R	1. Adults should be routinely counseled in healthcare visits to optimize a physically active lifestyle.
I	B-NR	2. Adults should engage in at least 150 minutes per week of accumulated moderate-intensity or 75 minutes per week of vigorous-intensity aerobic physical activity (or an equivalent combination of moderate and vigorous activity) to reduce ASCVD risk.

Exercise and Physical Activity (cont'd)

Recommendations for Exercise and Physical Activity		
COR	**LOE**	**Recommendations**
IIa	B-NR	3. For adults unable to meet the minimum physical activity recommendations (at least 150 minutes per week of accumulated moderate-intensity or 75 minutes per week of vigorous-intensity aerobic physical activity), engaging in some moderate- or vigorous-intensity physical activity, even if less than this recommended amount, can be beneficial to reduce ASCVD risk.
IIb	C-LD	4. Decreasing sedentary behavior in adults may be reasonable to reduce ASCVD risk.

Effectiveness of PA Counseling in Primary Care: Meta-analyses of RCT's

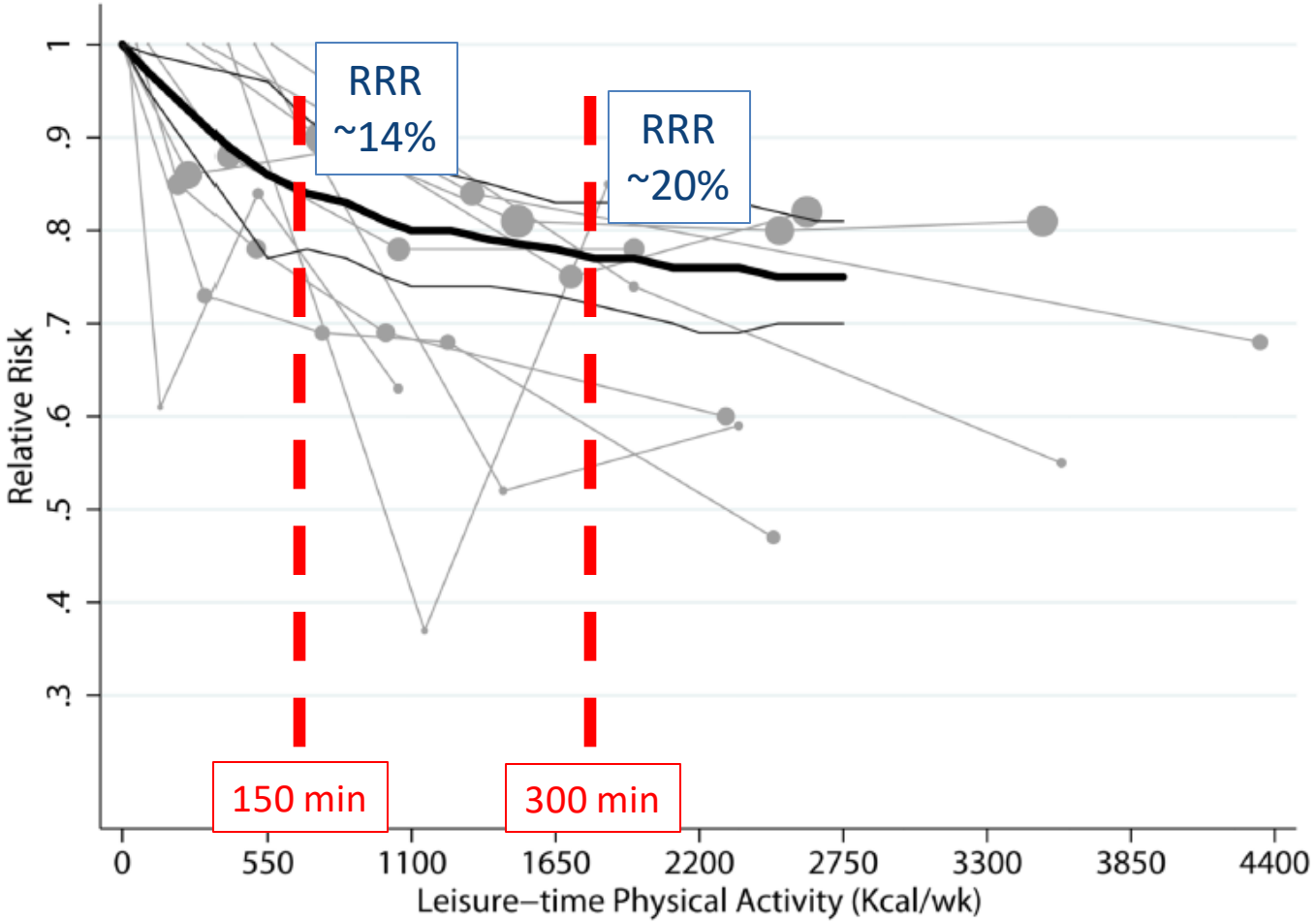


NNT 1 sedentary individual → meet PA recommendations =12

N=15 studies, sedentary individuals

Orrow G et al BMJ 2012; 344:e1389

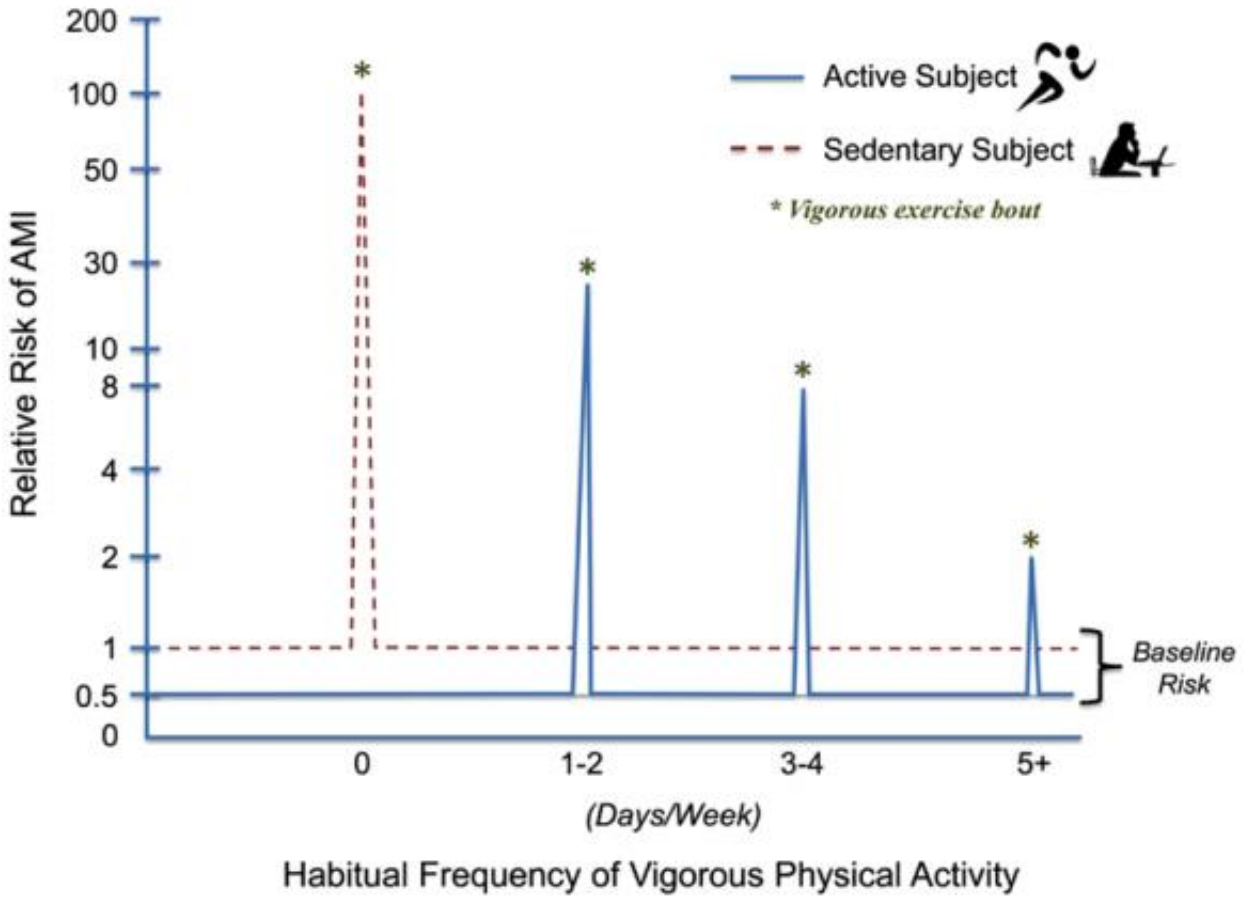
Dose Response Relationship of Exercise and Coronary Heart Disease Risk



Meta-analysis 33 prospective studies

Sattelmair J et al. Circulation 2011;124:789-795

Exercise Paradox: Safety of Exercise



Franklin BA. Circulation 2014;129:1081-1084.

Exercise Prescriptions

Frequency — ***Example: 5 days a week***

Duration — ***30 minutes***

Intensity — ***Treadmill walking 3mph, 0% grade***

Type

http://www.exerciseismedicine.org/

Aspirin for Primary Prevention

Guidelines for ASA in Primary Prevention of CVD 2016

Guideline	Recommendation
USPSTF 2016	-Ages 50-59, ≥10% 10-yr CVD risk- initiate ASA (B) -Ages 60-69, ≥10% 10-yr CVD risk- individualize (C) -Adult <50 or >70- no recommendation (I)
ADA 2016	-Type 1 or 2 DM and 10-year CVD risk >10% (C)
ESC 2012	Not recommended
ACCP 2012	Suggest low-dose aspirin for adults ≥50 years (2B)
AHA CVD Women 2011	-Can be useful in women ≥65 y if blood pressure is controlled and benefit outweighs risk (IIa) -May be reasonable in women <65 y for prevention of ischemic stroke (IIb)
AHA 1° Prevention 2002	Low-dose aspirin 10-yr risk of CHD ≥10%

Aspirin Use

Recommendations for Aspirin Use		
COR	**LOE**	**Recommendations**
IIb	**A**	**1. Low-dose aspirin (75-100 mg orally daily) might be considered for the primary prevention of ASCVD among select adults 40 to 70 years of age who are at higher ASCVD risk but not at increased bleeding risk.**
III: Harm	**B-R**	**2. Low-dose aspirin (75-100 mg orally daily) should not be administered on a routine basis for the primary prevention of ASCVD among adults >70 years of age.**
III: Harm	**C-LD**	**3. Low-dose aspirin (75-100 mg orally daily) should not be administered for the primary prevention of ASCVD among adults of any age who are at increased risk of bleeding.**

Aspirin for Primary Prevention of ASCVD: More Recent Data

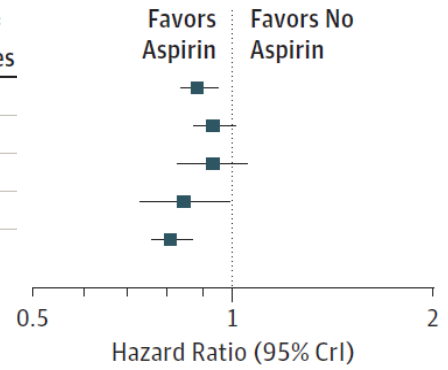
↓*ASCVD*

↑*Bleeding*

Aspirin for Primary Prevention of CV Events: Recent Meta-analysis

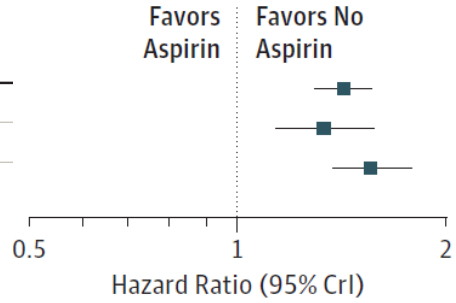
Cardiovascular Outcomes	No. of Studies
Composite CV outcome	11
All-cause mortality	13
CV mortality	13
Myocardial infarction	13
Ischemic stroke	10

↓11%



Bleeding Outcomes	No. of Studies
Major bleeding	11
Intracranial bleeding	12
Major GI bleeding	10

↑43%



Number needed to treat
265

Number needed to harm
210

Zheng S et al JAMA 2019; 321:277-287

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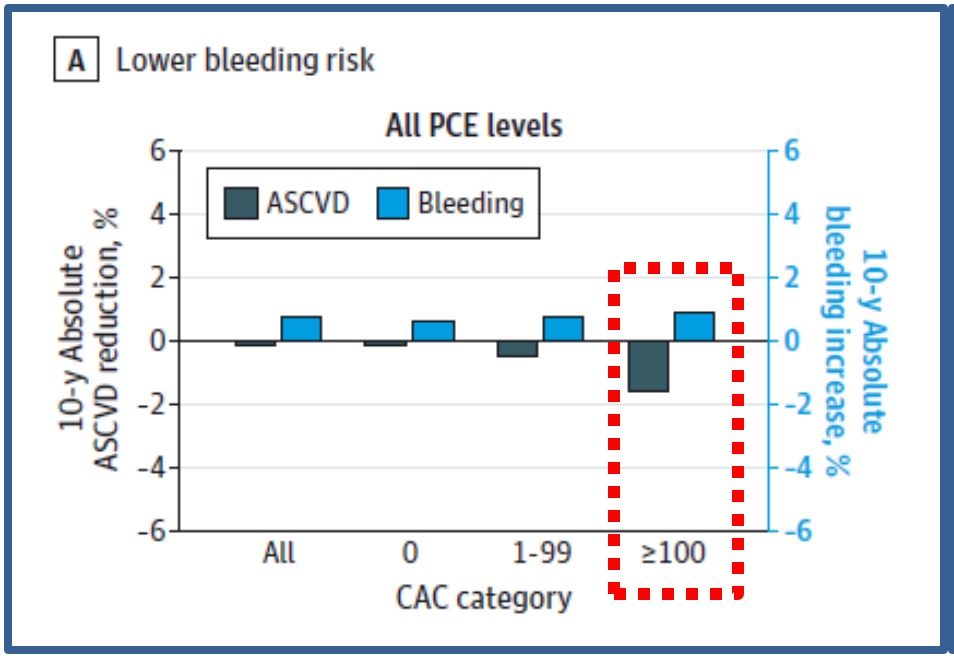
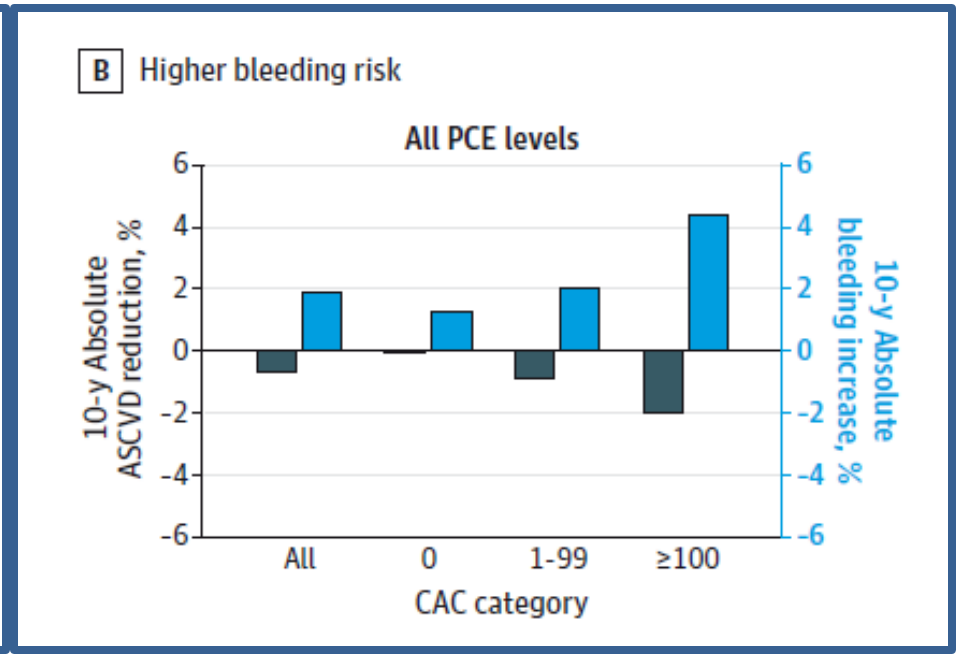
Coronary Calcium Score To Determine Net Benefit of ASA

THE DALLAS HEART STUDY





N=2191

Ajufo E, Khera A JAMA Cardio Oct 2020

Aspirin Use

Recommendations for Aspirin Use		
COR	**LOE**	**Recommendations**
		1. Low-dose aspirin (75-100 mg orally daily) might be
III: Harm	**B-R**	**be administered on a routine basis for the primary prevention of ASCVD among adults >70 years of age.**
III: Harm	**C-LD**	**3. Low-dose aspirin (75-100 mg orally daily) should not be administered for the primary prevention of ASCVD among adults of any age who are at increased risk of bleeding.**

Aspirin for Primary Prevention: "Generally no, occasionally yes"

Conclusions

- The AHA/ACC Prevention Guidelines endorse a comprehensive approach to the primary prevention of ASCVD
- Lifestyle habits are the cornerstone of primary prevention efforts
- The Mediterranean Diet is the only pattern with outcomes data for ASCVD risk lowering
- All adults should be counseled on the benefits of regular physical activity at every visit
  - Ideally, they would achieve at least 150/75 min/week of moderate/vigorous physical activity, but some activity is still valuable
- Aspirin in primary prevention modestly lowers ASCVD events but is offset by an increased risk of major bleeding for most individuals
  - There may be characteristics to determine optimal candidates for aspirin