
Are Abnormal Lipid Levels Harmful in Young Adults?

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YES!

**Abnormal Lipid Levels are
Harmful in Young Adults**

Why?

Dyslipidemia

A consequence of abnormal lipoprotein metabolism

Elevated blood levels of lipoproteins (cholesterol, triglycerides, phospholipids)

Lipoprotein abnormalities: ≥ 1 of the following

elevated total cholesterol (TC)

elevated low-density lipoprotein (LDL)

elevated triglycerides (TG)

reduced high-density lipoprotein (HDL)

Lipid and Lipoprotein Classification

LDL Cholesterol (mg/dl)

<100	Optimal
100-129	Near/Above Optimal
130-159	Borderline High
160-189	High
≥190	Very High

HDL Cholesterol (mg/dl)

< 40	Low
≥ 60	High (Desirable)

Categories of Risk that Modify LDL Goals

CHD and CHD risk equivalents	<100
Multiple (2+) risk factors	<130
Zero to one risk factor	<160

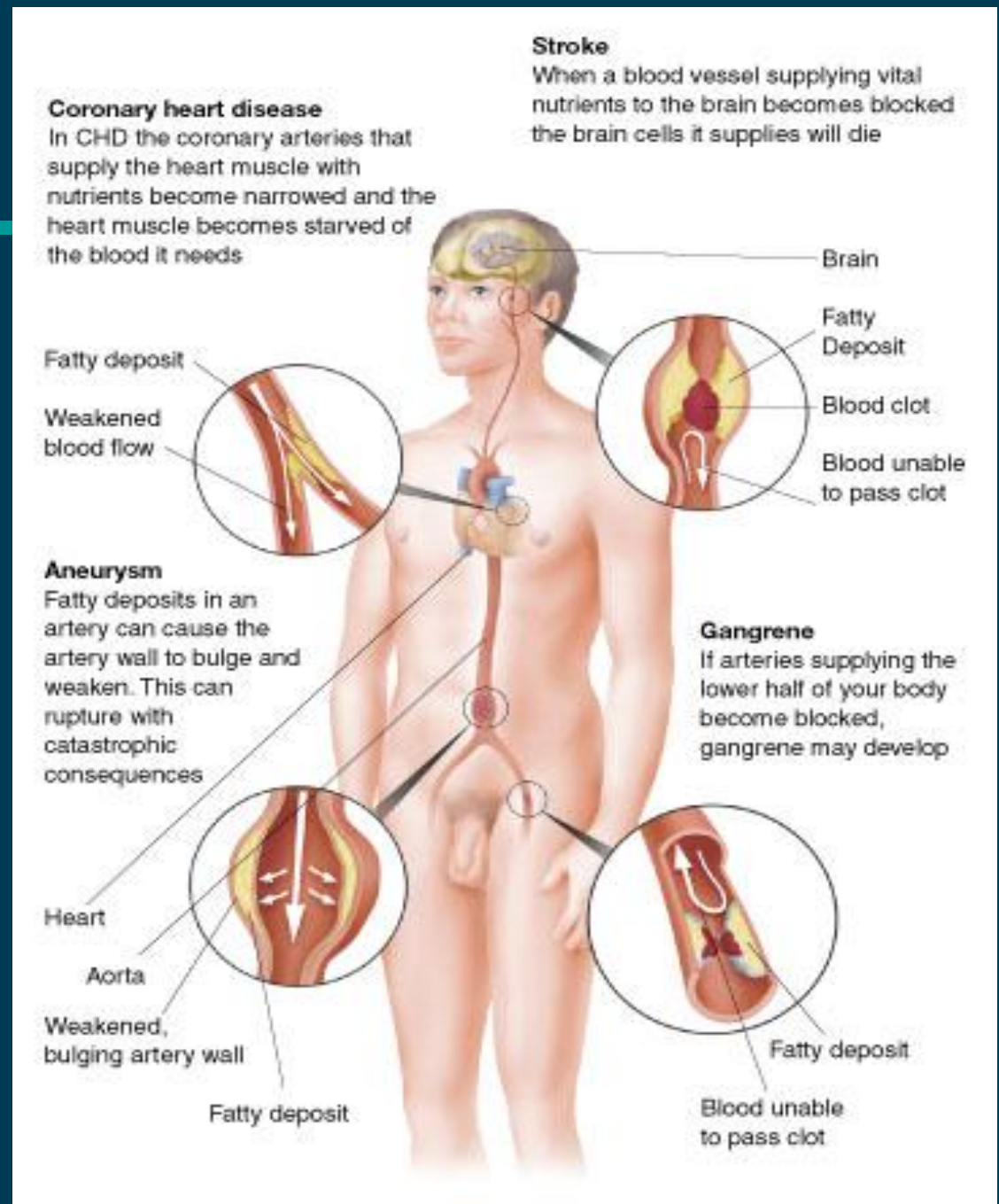
Classification of triglycerides

Normal	< 150 mg/dl
Borderline-high	150-199 mg/dl
High	200-499 mg/dl
Very high	≥ 500 mg/dl

Why Do We Care?

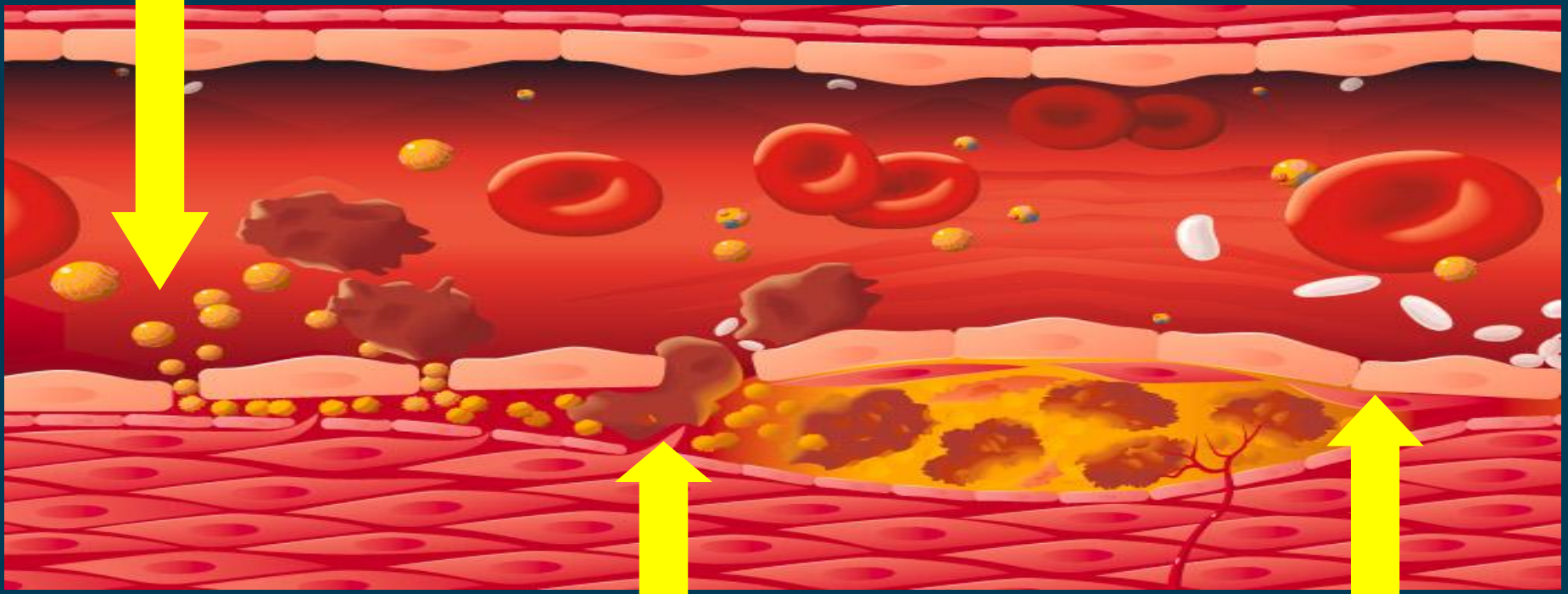
According to the Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation and Treatment of High Cholesterol in Adults (NCEP ATP-III):

.....High LDL levels are a leading cause of coronary heart disease (CHD) and should be the main target of any cholesterol lowering regimen.....



LDL and atherosclerosis

1- Migration of LDL from blood to the subendothelial space where it is transformed into oxidized LDL

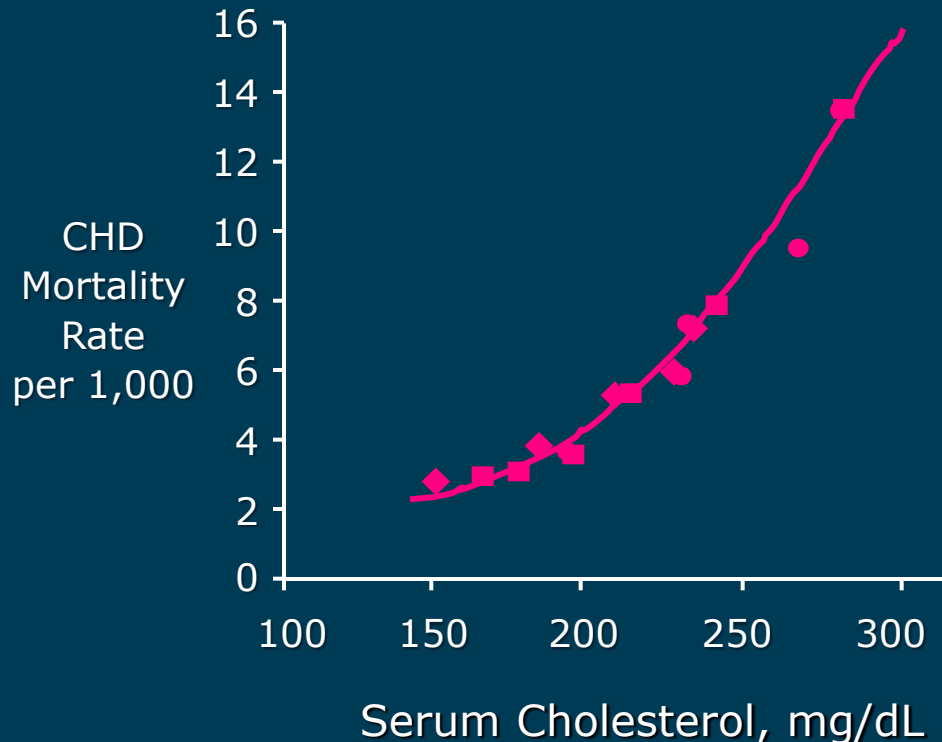


2- Migration of monocytes from the blood to the subendothelial space and differentiation into macrophages. The macrophages phagocytose oxidized LDL leading to foam cells

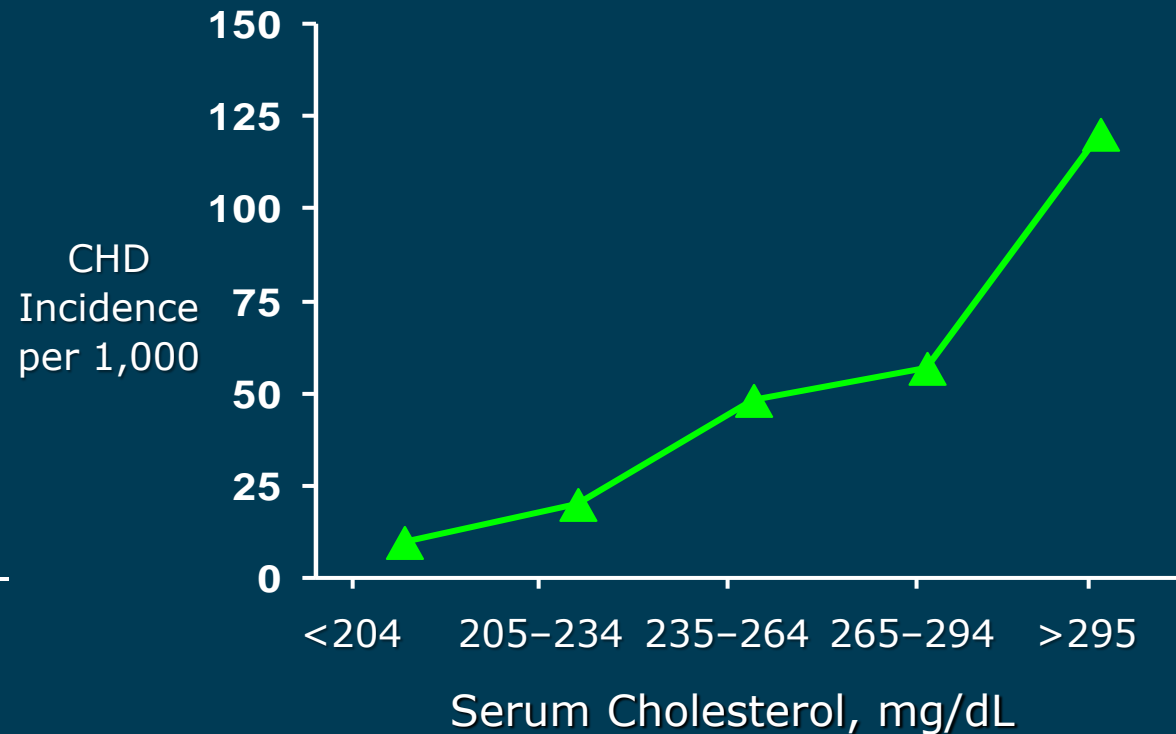
3- Migration of smooth cells from the media to the subendothelial space. Proliferation and synthesis of collagen

CHD Risk Increases with Cholesterol level Increase

MRFIT (n=356,222)¹



Framingham Study (n=5,209)²

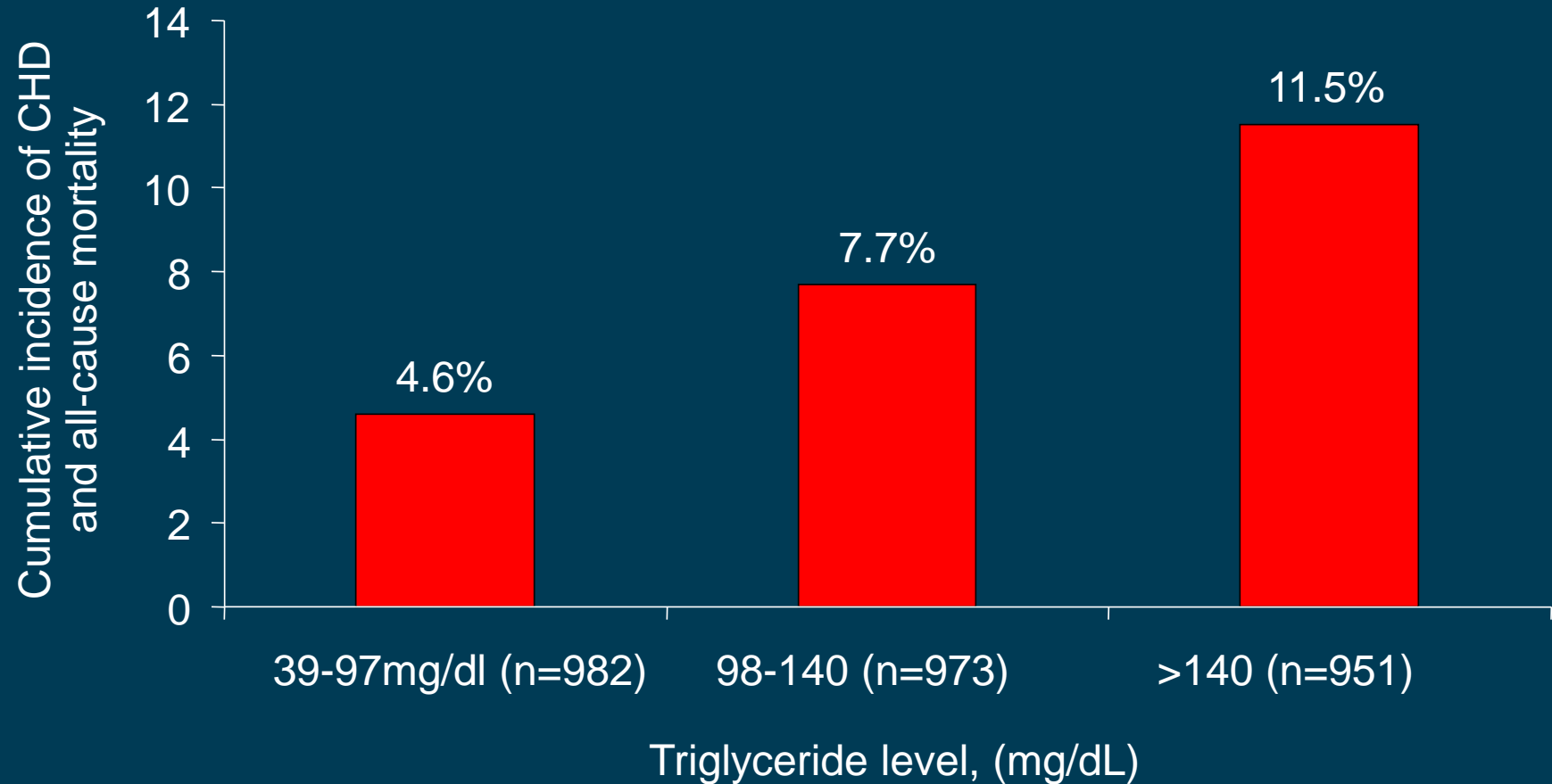


CHD = coronary heart disease; MRFIT = Multiple Risk Factor Intervention Trial.

1. Stamler J et al. *JAMA*. 1986;256:2823-2828.

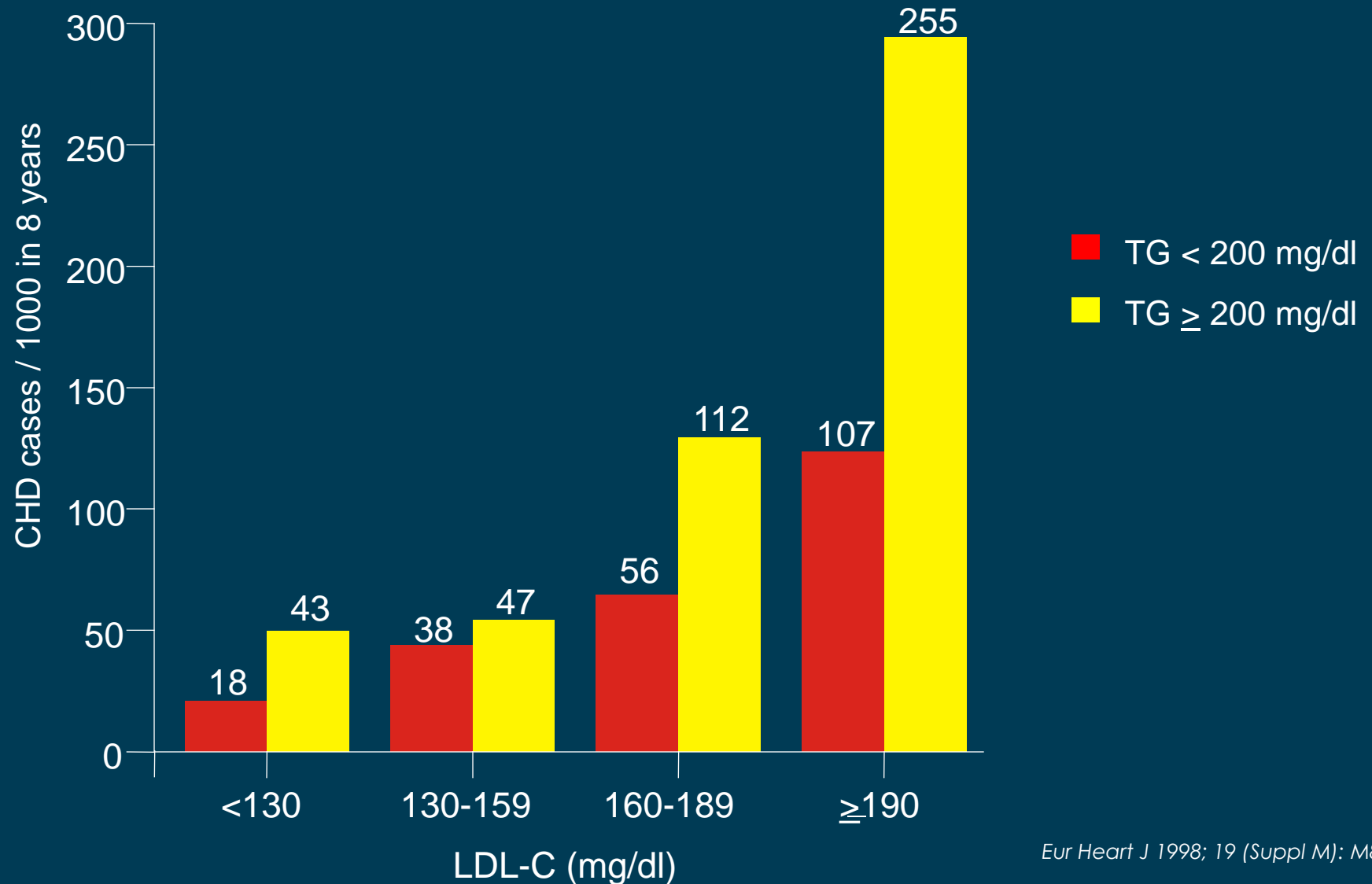
2. Reprinted from *Am J Med*, Vol 76, WP Castelli, Epidemiology of coronary heart disease: the Framingham Study, pp. 4-12, Copyright 1984, with permission from Excerpta Medica Inc.

Triglycerides as a risk factor for CHD



N=2906; 8years

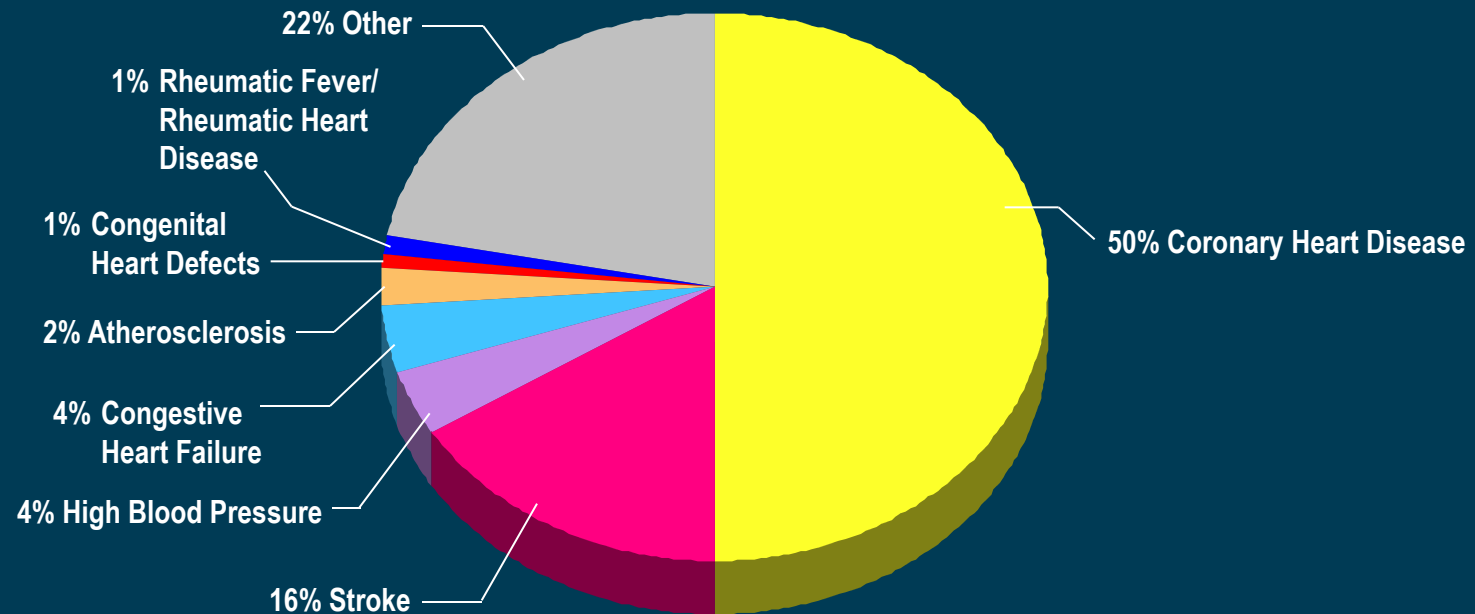
Elevated triglycerides and LDL-C: A synergistic risk factor



Coronary Heart Disease: Despite Advances, Still the #1 Killer

Percentage Breakdown of Deaths From Cardiovascular Diseases

United States: 1995 Mortality, Final Data



Annals of Internal Medicine

SUMMARIES FOR PATIENTS

Are Abnormal Lipid Levels Harmful in Young Adults?

**Nonoptimal Lipids Commonly Present in Young Adults and Coronary Calcium Later in Life:
The CARDIA Study
(Coronary Artery Risk Development in young Adults)**

August 2010 issue of
Annals of Internal Medicine
(volume 153, pages 137-146)

CARDIA Study

Why did the researchers do this particular study?

To see whether young adults with abnormal lipid levels are more likely to have calcium buildup in their coronary arteries later in life.

Who was studied?

3,258 young adults who participated in a long-term study of heart health.

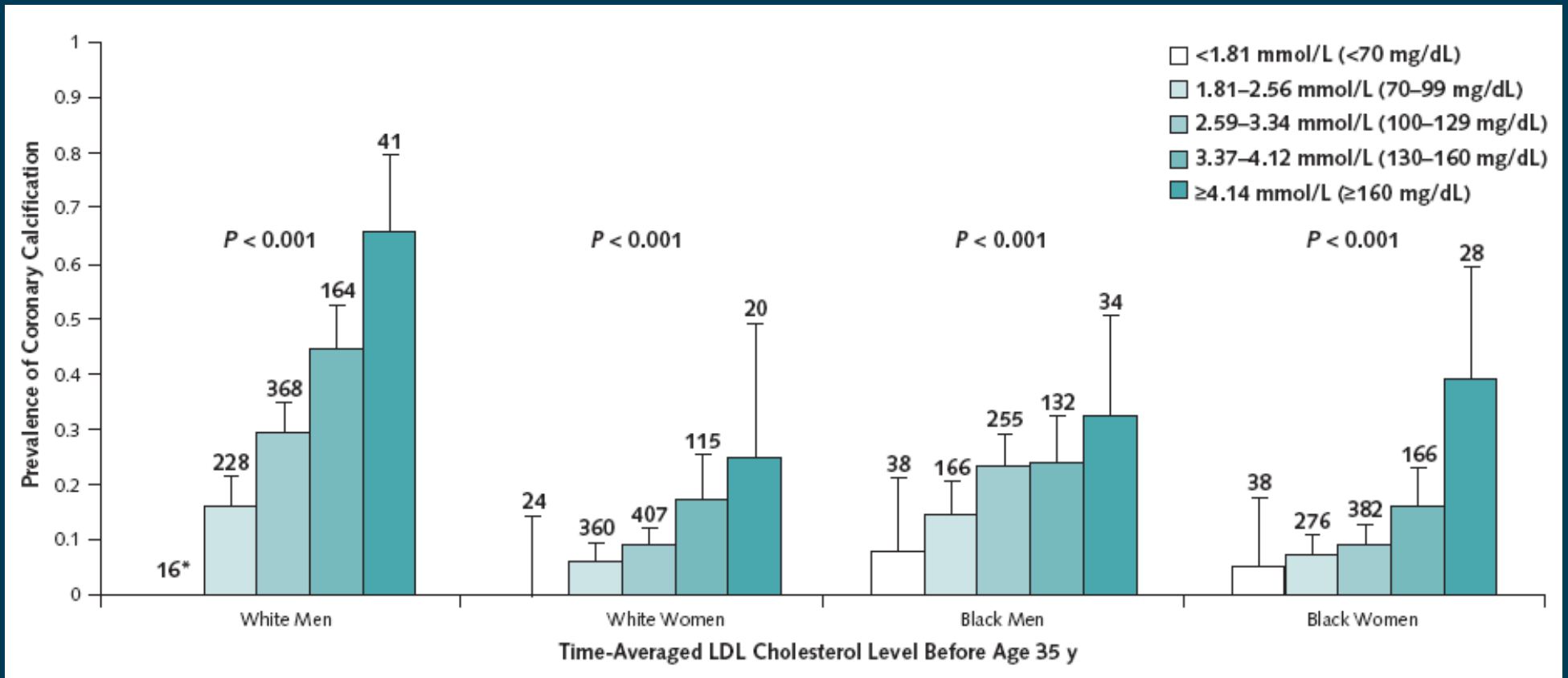
CARDIA Study

How was the study done?

The researchers measured participants' lipid levels over 15 to 20 years. At the end of that period, they did CT to measure coronary artery calcium. They then compared the probability of having coronary artery calcium in participants with and without abnormal lipid levels.

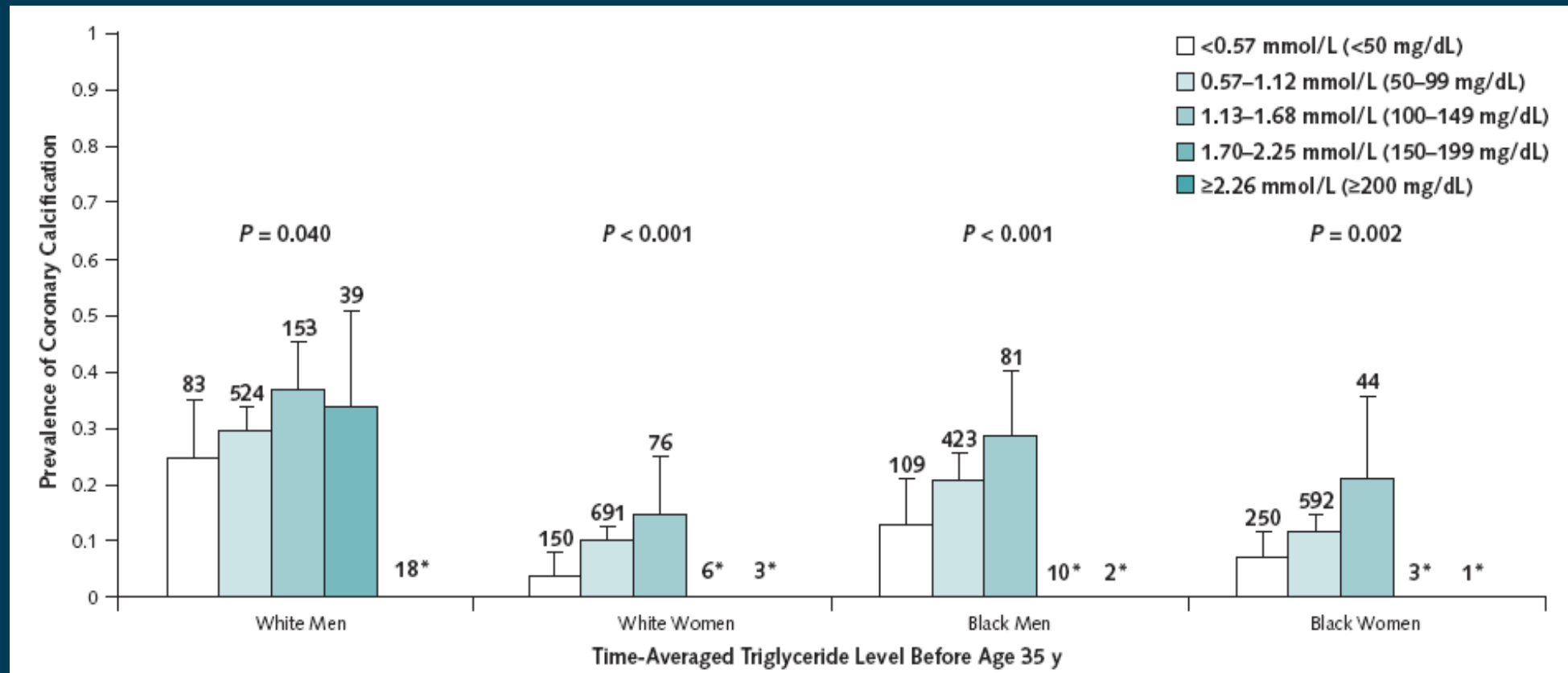
CARDIA Study

Coronary calcification increases with the increase of LDL level



CARDIA Study

Coronary calcification increases with the increase of TG level



CARDIA Study

What did the researchers find?

Participants with worse lipid levels throughout young adulthood were more likely to have calcium in their coronary arteries later in life.

What are the implications of the study?

Abnormal lipid levels in young adulthood make a person more likely to have coronary artery calcium and atherosclerosis later in life.

ধন্যবাদ

köszönöm ! תודה děkuji

mahalo 고맙습니다

thank you

merci 謝謝 *danke*

Ευχαριστώ شڪرا

どうもありがとう *gracias*