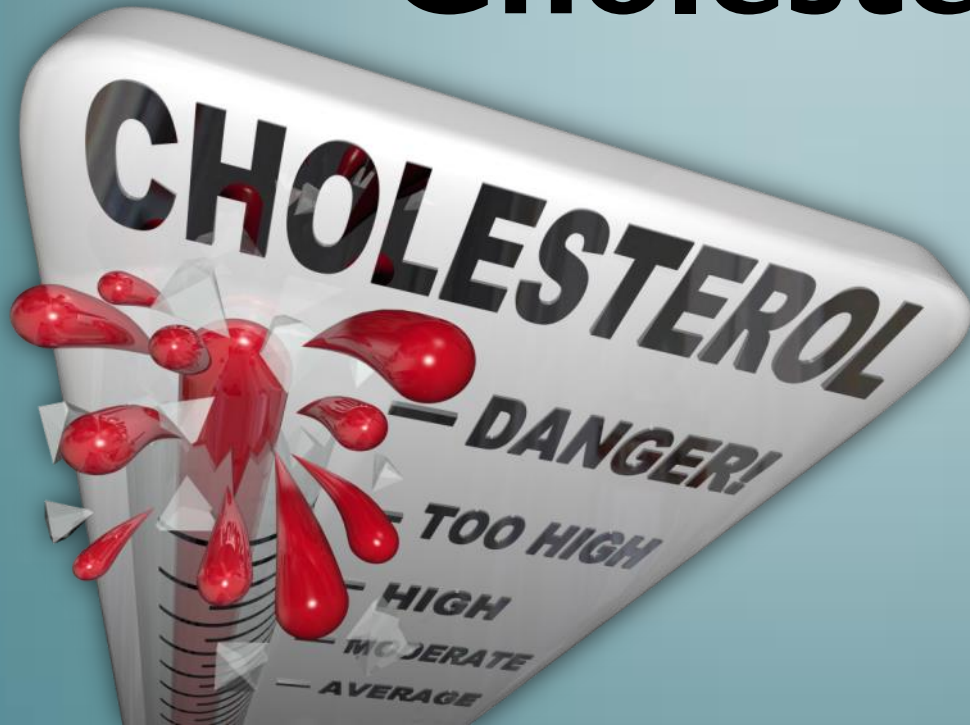


Cholesterol OMG!



Jeffry N. Gerber, MD
Denver's Diet Doctor



The cholesterol expert
No conflicts



- Low carb, high fat
- Paleo, Primal
- Wheat belly
- Weston A. Price

MARCH 26, 2004

\$1.75

TIME

CHOLESTEROL

And Now the Bad News...



AFTER SUPER TUESDAY
The Democrats
Brace for a
Marathon

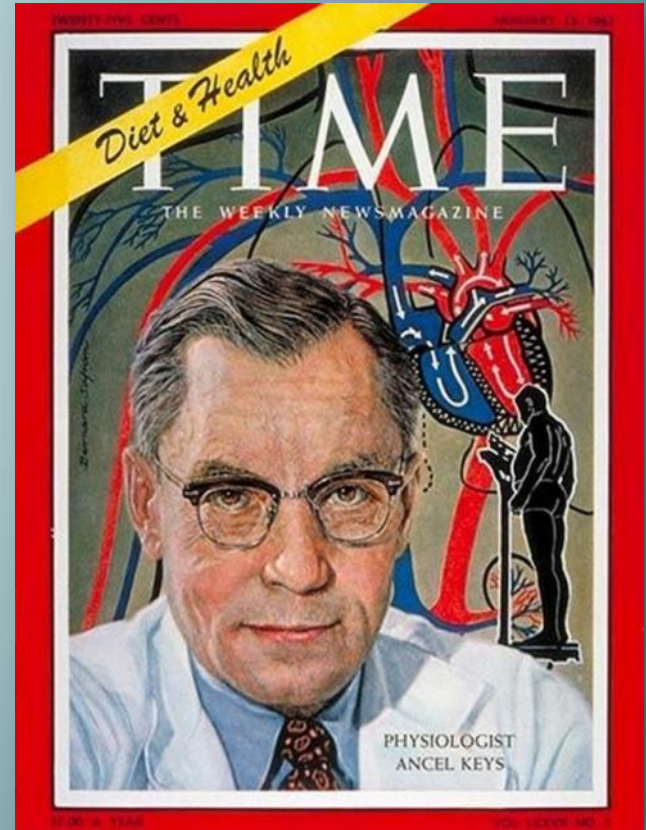


The endless war on cholesterol



Cholesterol and cardiovascular disease

- Diet heart hypothesis
Avoid saturated fat
- Lipid hypothesis
Take medication



Center

AM ET

NEW CHOLESTEROL RECOMMENDATIONS

SOURCE:
AMERICAN HEART
ASSOCIATION

DIABETES
(TYPE 1 OR 2)

TAKE
STATIN

BAD
CHOLESTEROL
OVER 190

10 YEAR RISK
OVER 7.5%

HEART
DISEASE



NEW GUIDELINES ON STATINS
CHOLESTEROL TARGETS DROPPED, RISK FACTORS IN FOCUS

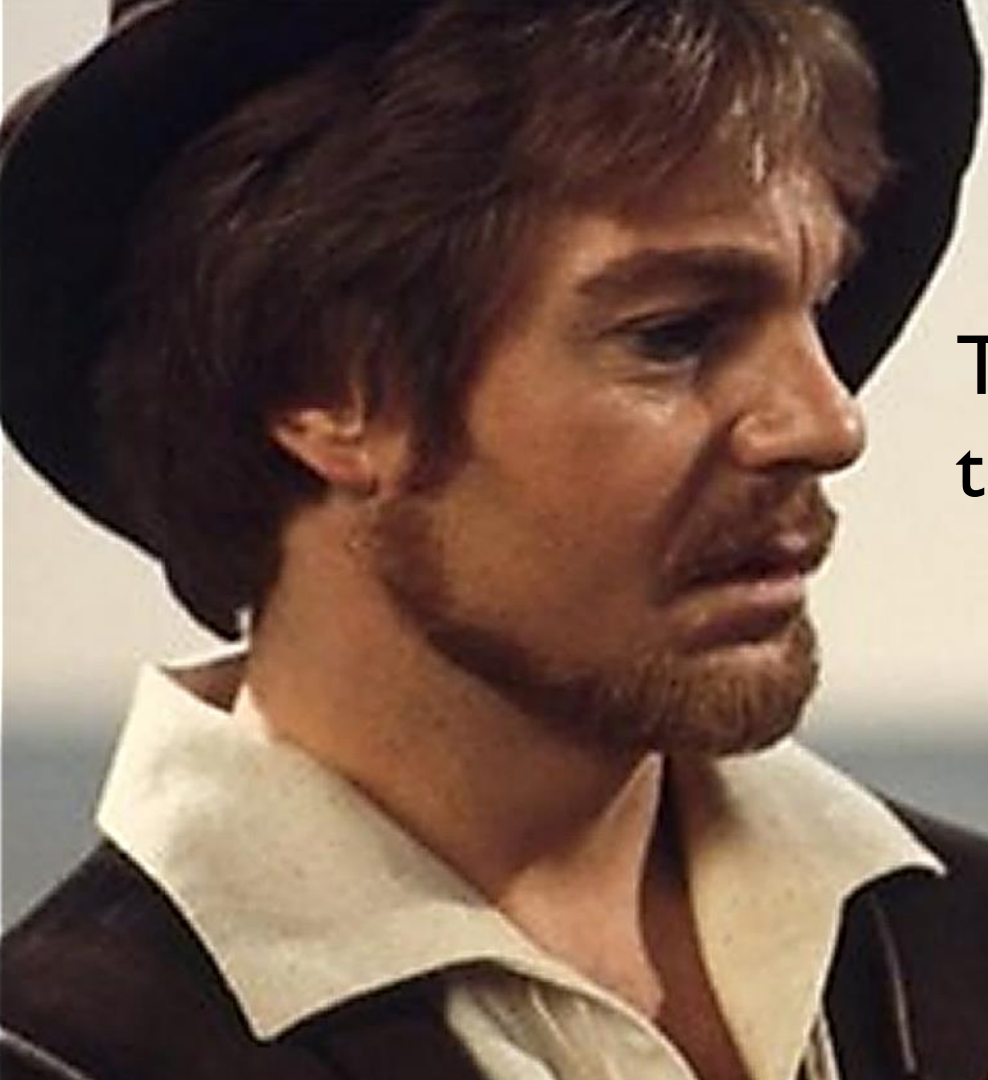
LIVE
CNN





Don't ask, don't tell policies

- Absolute risk reduction tiny
- Risk calculator flawed
- Side effects of little importance
- Cholesterol lowering therapy controversial
- Blocking innovation
- Only one therapy
- Only one question



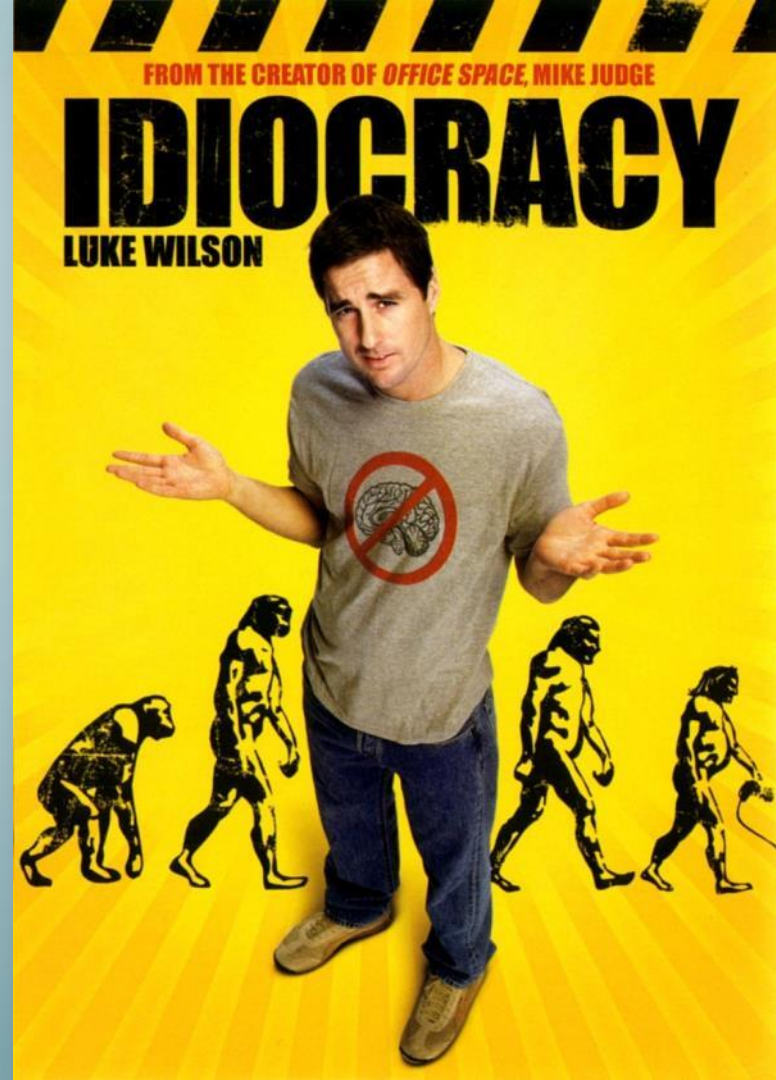
To **Statin**, or not to **Statin**,
that is the question.

Obstacles to change

- Human nature
- Industry's arrogance
- Political & financial gain
- Ignoring science
- Stupidity



Define stupidity





FDA Food Pyramid

A Guide to Daily Food Choices

BRAWNDO
MOST EACH DAY

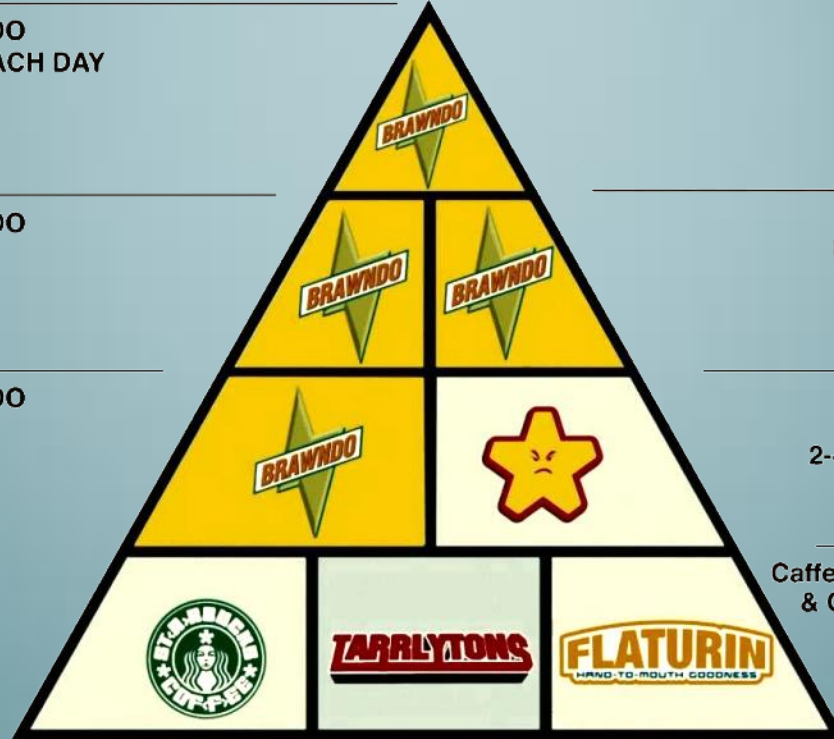
BRAWNDO
MORE

BRAWNDO
A LOAD

BRAWNDO
EVEN MORE

Grease
Group
2-4 SERVINGS

Caffeine, Smokes
& Convenience
Group
6-11
SERVINGS





Give plants water.

Water, like out the
Toilet ???

Dust bowl crisis
resolved.

- Cholesterol is essential to life
- The innocent bystander





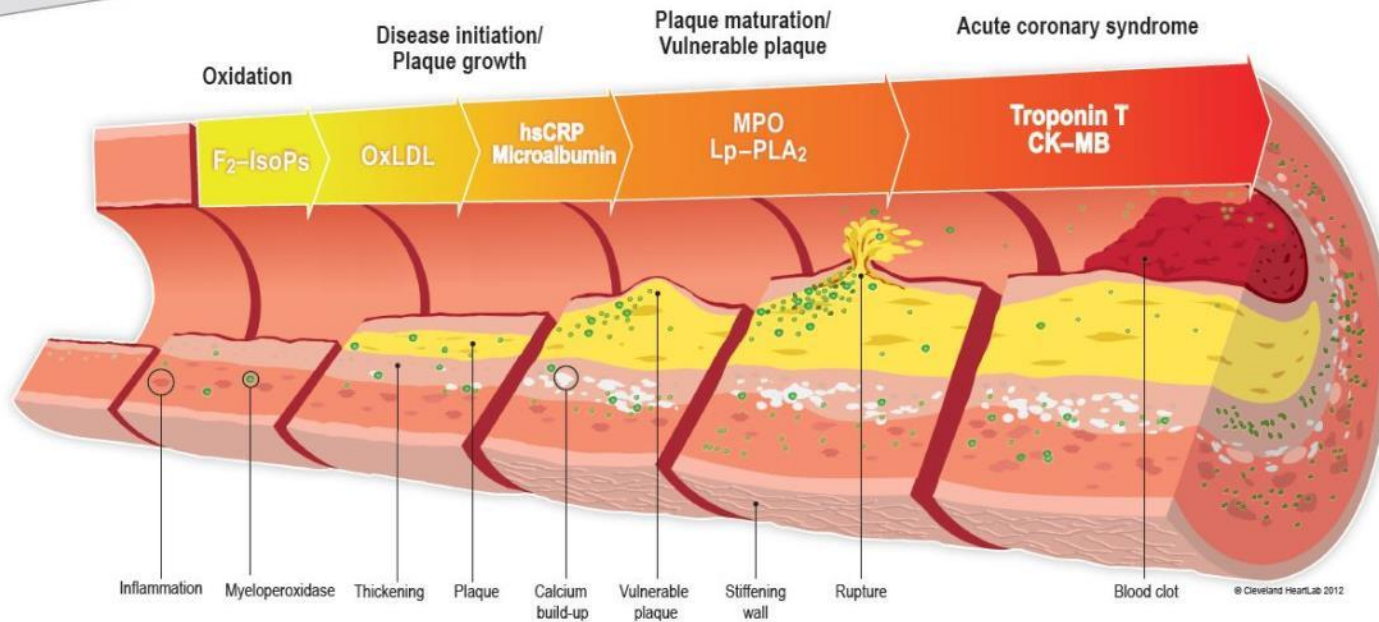
Atherosclerosis

The fire within

- Inflammation & oxidation
- Response to injury
- Changing cholesterol quality

Inflammatory Biomarkers and the Progression of Atherosclerosis

The progression of atherosclerosis is marked by specific inflammatory biomarkers, and their levels can be measured to determine a patient's risk for heart disease and cardiac events.





Lab testing

- General
- Hormonal / Insulin
- Inflammatory
- Genetic
- Cholesterol & lipids
- CV Imaging
- Functional



Total Cholesterol

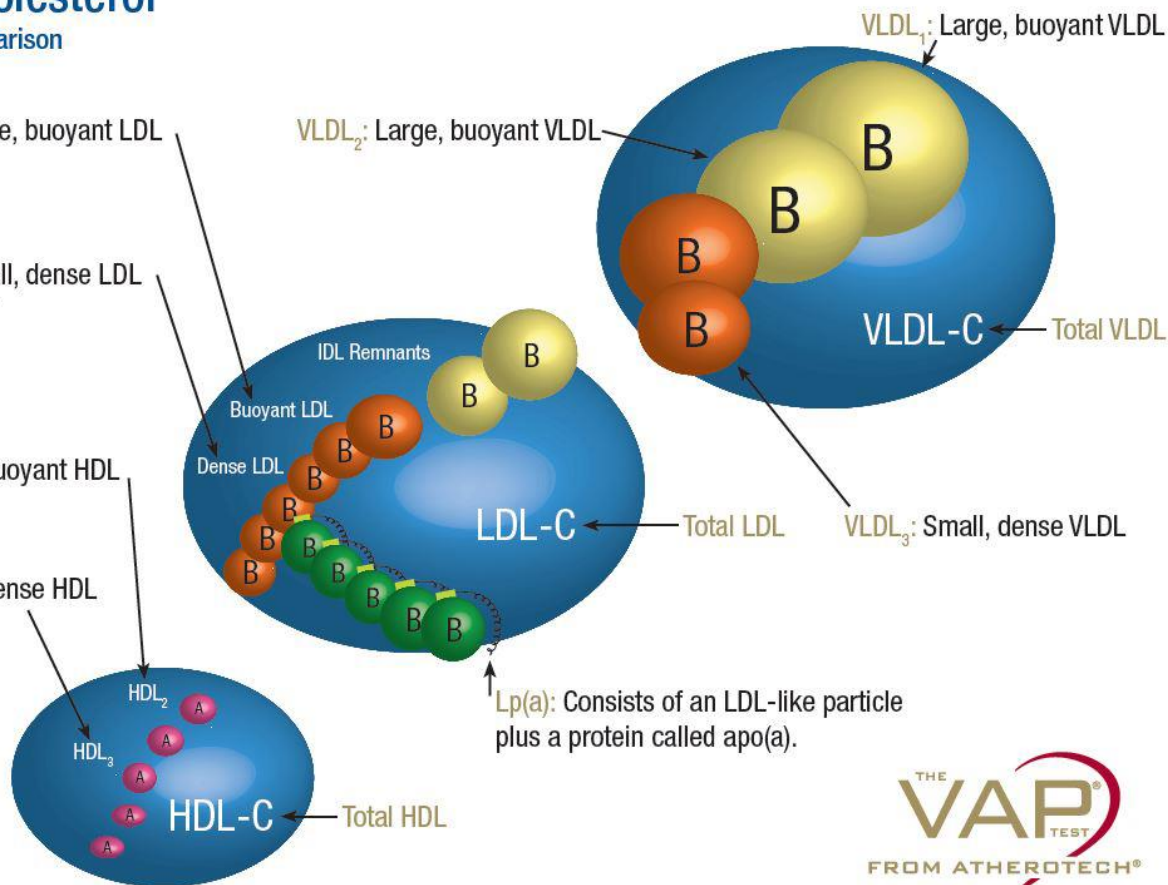
A Visual Comparison

Pattern A: Large, buoyant LDL
"Less Risk"

Pattern B: Small, dense LDL
"Highest Risk"

HDL₂: Large, buoyant HDL

HDL₃: Small, dense HDL









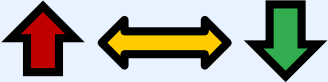

Standard lipid tests

| Test | Goal mg/dl | Goal mmol/l |
|-------------------|------------|-------------|
| Total cholesterol | <200 | <5.2 |
| Triglyceride | <100 | <1.3 |
| HDL [ApoA1] | >50 | >1.3 |
| LDL | <130 | <3.4 |

Additional tests

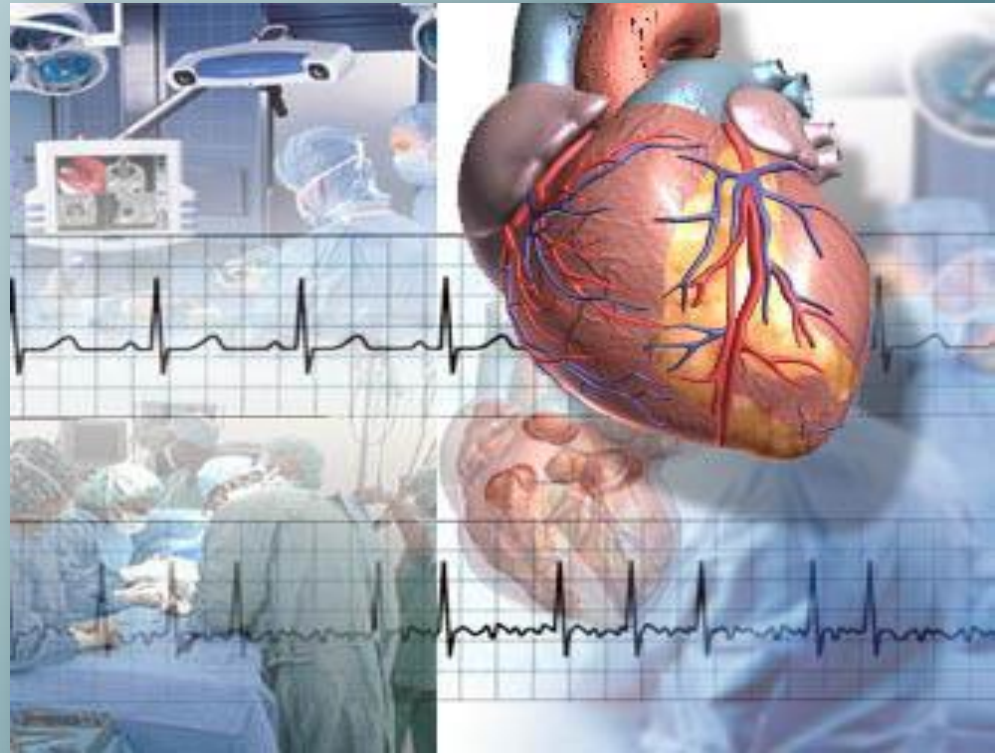
| Test | Goal md/dl | Goal mmol/l |
|-----------------------|------------|-------------|
| Total cholesterol/HDL | <4.0 ratio | <4.0 ratio |
| Triglycerides/HDL | <2.0 ratio | <0.87 ratio |
| Non-HDL [ApoB100] | <160 | <4.1 |
| Fasting Glucose | <95 | <5.3 |
| HbA1c | <5.0% | <5.0% |

Dietary effects

| Test | Low carb high fat | Low fat low calorie |
|----------------------|--|---|
| Triglyceride |  |  |
| HDL |  |  |
| LDL size and quality |  |  |
| LDL |  |  |

Advanced lipid testing

- VAP
- Berkeley
- NMR
- HDL
- Boston Heart



Advanced NMR Lipoprofile testing

| Test | Green | Yellow | Red |
|---------------------|-----------|-----------|-----------|
| Total LDL-P nmol/l | <1000 | 1001-1599 | >1600 |
| Small LDL-P nmol/l | <117 | 118-838 | >839 |
| Average LDL size nm | 23.0-20.6 | - | 20.5-19.0 |
| Small/Total LDL-P % | <11 | 12-52 | >53 |

Additional testing

| Test | Green | Yellow | Red |
|--------------------------------|-------|---------|--------|
| ApoB100 mg/dl [non HDL-C] | <90 | 90-120 | >120 |
| Lp(a) mass mg/dl | <30 | - | >30 |
| hs-CRP mg/l | <1.0 | 1-3 | 3.1-10 |
| Lp-PLA2 ng/ml | <200 | 200-235 | >235 |
| Cardiac Myeloperoxidase pmol/l | <480 | - | >480 |



Low carb Patsy standard lipids

| Test | Before | After | Goal mg/dl | Goal mmol/l |
|-------------------|--------|-------|------------|-------------|
| Total cholesterol | 225 | 164 | <200 | <5.2 |
| Triglyceride | 163 | 84 | <100 | <1.3 |
| HDL [ApoA1] | 62 | 66 | >50 | >1.3 |
| LDL | 130 | 81 | <130 | <3.4 |

Additional results

| Test | Before | After | Goal md/dl | Goal mmol/l |
|-----------------------|--------|-------|------------|-------------|
| Total cholesterol/HDL | 3.6 | 2.4 | <4.0 ratio | <4.0 ratio |
| Triglycerides/HDL | 2.6 | 1.3 | <2.0 ratio | <0.87 ratio |
| Non-HDL [ApoB100] | 163 | 114 | <160 | <4.1 |
| Fasting Glucose | 131 | 88 | <95 | <5.3 |
| HbA1c | 5.7 | 4.8 | <5.0% | <5.0% |

Low carb Patsy NMR

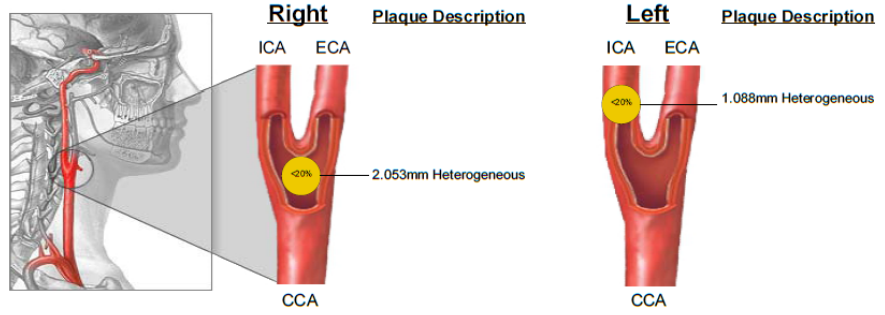
| Test | Result | Green | Yellow | Red |
|---------------------|--------|-----------|-----------|-----------|
| Total LDL-P nmol/l | 1459 | <1000 | 1001-1599 | >1600 |
| Small LDL-P nmol/l | 578 | <117 | 118-838 | >839 |
| Average LDL size nm | 20.8 | 23.0-20.6 | - | 20.5-19.0 |
| Small/Total LDL-P % | 39 | <11 | 12-52 | >53 |

Additional results

| Test | Result | Green | Yellow | Red |
|--------------------------------|--------|-------|---------|--------|
| ApoB100 mg/dl [non HDL-C] | 93 | <90 | 90-120 | >120 |
| Lp(a) mass mg/dl | 37 | <30 | - | >30 |
| hs-CRP mg/l | 2.9 | <1.0 | 1-3 | 3.1-10 |
| Lp-PLA2 ng/ml | 231 | <200 | 200-235 | >235 |
| Cardiac Myeloperoxidase pmol/l | 274 | <480 | - | >480 |

Visualized Plaque and Atherosclerotic Burden Assessment

Name: PATSY DOB: Age: 58 Gender: Female Date: 5/8/13

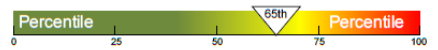


*Plaque noted above was measured through arterial area diameter reduction, which is deliberated by measuring the circumference of the outside of the vessel subtracting any visible stenosis.
 *Carotid velocities provided on reverse.

Carotid - IMT

Your average Carotid-IMT is 0.713
 You are a 58 year old with arteries of a 64 year old Female.

This graph indicates your percentile score for similar sex and age.



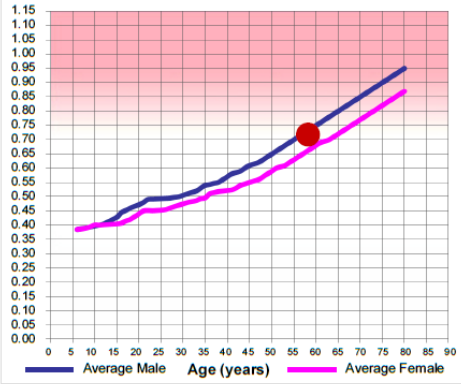
A C-IMT of less than 0.60mm is generally considered healthy.

Technical Notes:
 58 year old Female for cardiovascular risk stratification.

Physicians Notes:

| Current CIMT Measurement | | | |
|--------------------------|-----|-------|------------|
| Date | Age | CIMT | Percentile |
| May 2013 | 58 | 0.713 | 65th |

Mean Distal 1 cm CCA IMT of General Population with No Coronary Heart History



Primal Eric P



Primal Eric P standard lipids

| Test | Before | After | Goal mg/dl | Goal mmol/l |
|-------------------|--------|-------|------------|-------------|
| Total cholesterol | 195 | 264 | <200 | <5.2 |
| Triglyceride | 89 | 86 | <100 | <1.3 |
| HDL [ApoA1] | 34 | 48 | >50 | >1.3 |
| LDL | 137 | 191 | <130 | <3.4 |

Additional results

| Test | Before | After | Goal md/dl | Goal mmol/l |
|-----------------------|--------|-------|------------|-------------|
| Total cholesterol/HDL | 5.7 | 5.5 | <4.0 ratio | <4.0 ratio |
| Triglycerides/HDL | 2.6 | 1.8 | <2.0 ratio | <0.87 ratio |
| Non-HDL [ApoB100] | 161 | 216 | <160 | <4.1 |
| Fasting Glucose | 90 | 82 | <95 | <5.3 |
| HbA1c | - | 5.0 | <5.0% | <5.0% |

Primal Eric P NMR

| Test | Result | Green | Yellow | Red |
|---------------------|-------------|-----------|-----------|------------------|
| Total LDL-P nmol/l | 2159 | <1000 | 1001-1599 | >1600 |
| Small LDL-P nmol/l | 958 | <117 | 118-838 | >839 |
| Average LDL size nm | 20.8 | 23.0-20.6 | - | 20.5-19.0 |
| Small/Total LDL-P % | 44 | <11 | 12-52 | >53 |

Additional results

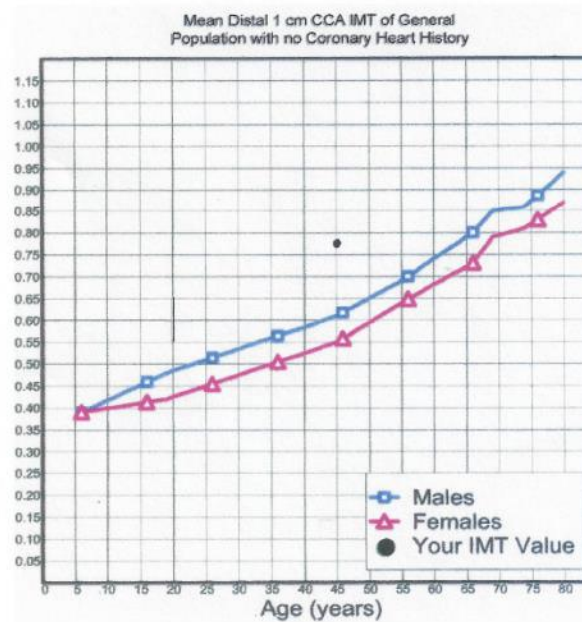
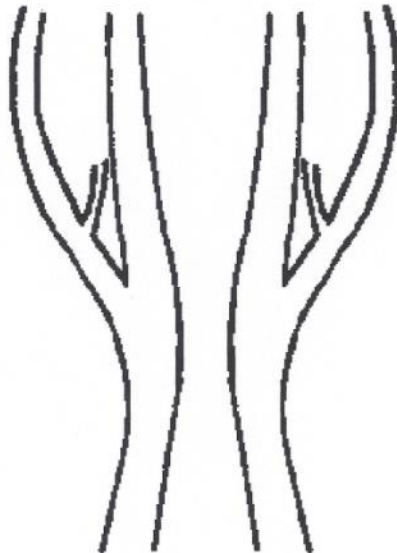
| Test | Result | Green | Yellow | Red |
|--------------------------------|------------|-------|---------|---------------|
| ApoB100 mg/dl [non HDL-C] | 138 | <90 | 90-120 | >120 |
| Lp(a) mass mg/dl | 5 | <30 | - | >30 |
| hs-CRP mg/l | 0.5 | <1.0 | 1-3 | 3.1-10 |
| Lp-PLA2 ng/ml | 207 | <200 | 200-235 | >235 |
| Cardiac Myeloperoxidase pmol/l | 120 | <480 | - | >480 |

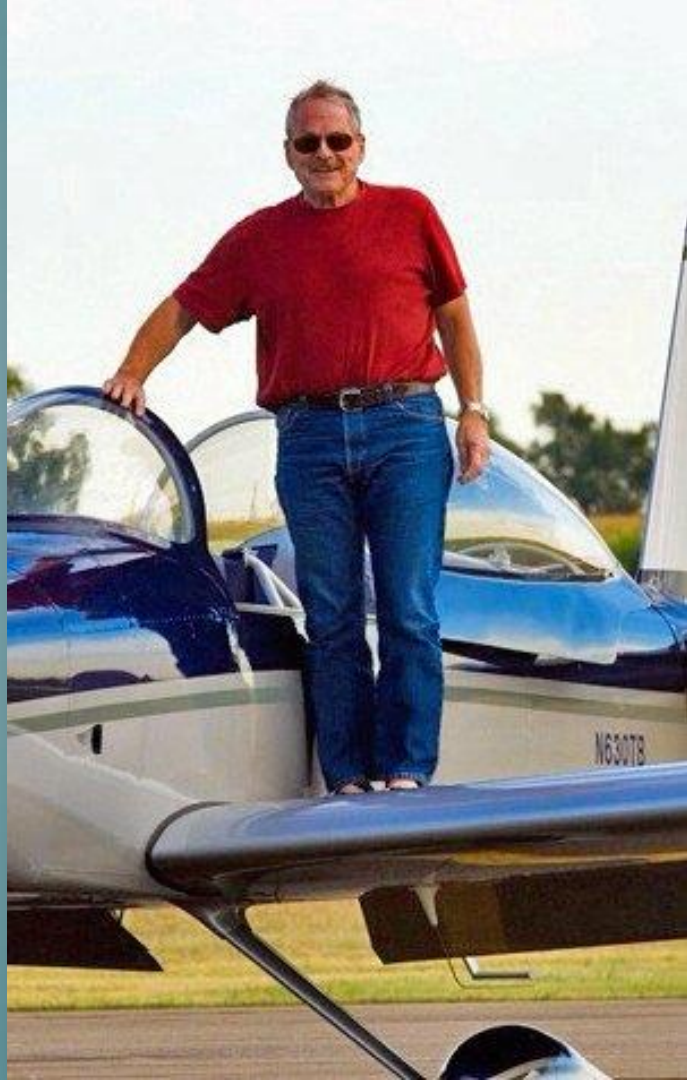
Primal Eric P CIMT

Sonographer Comments:
NO PLAQUE SEEN
RISK INCREASED BY 35%

RIGHT

LEFT





Wheat belly Tom standard lipids

| Test | Before | After | Goal mg/dl | Goal mmol/l |
|-------------------|--------|-------|------------|-------------|
| Total cholesterol | 153 | 219 | <200 | <5.2 |
| Triglyceride | 121 | 69 | <100 | <1.3 |
| HDL [ApoA1] | 46 | 66 | >50 | >1.3 |
| LDL | 84 | 139 | <130 | <3.4 |

Additional results

| Test | Before | After | Goal md/dl | Goal mmol/l |
|-----------------------|--------|-------|------------|-------------|
| Total cholesterol/HDL | 3.3 | 3.3 | <4.0 ratio | <4.0 ratio |
| Triglycerides/HDL | 2.6 | 1.0 | <2.0 ratio | <0.87 ratio |
| Non-HDL [ApoB100] | 107 | 153 | <160 | <4.1 |
| Fasting Glucose | - | 90 | <95 | <5.3 |
| HbA1c | 6.6 | 5.8 | <5.0% | <5.0% |

Wheat belly Tom NMR

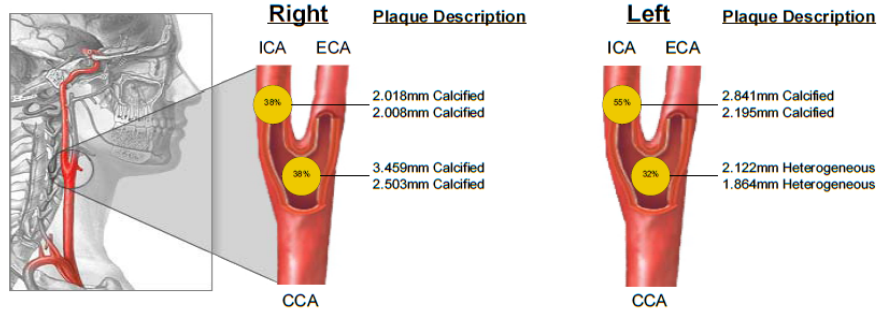
| Test | Result | Green | Yellow | Red |
|---------------------|--------|-----------|-----------|-----------|
| Total LDL-P nmol/l | 1108 | <1000 | 1001-1599 | >1600 |
| Small LDL-P nmol/l | < 90 | <117 | 118-838 | >839 |
| Average LDL size nm | 21.7 | 23.0-20.6 | - | 20.5-19.0 |
| Small/Total LDL-P % | 8 | <11 | 12-52 | >53 |

Additional results

| Test | Result | Green | Yellow | Red |
|--------------------------------|--------|-------|---------|--------|
| ApoB100 mg/dl [non HDL-C] | 84 | <90 | 90-120 | >120 |
| Lp(a) mass mg/dl | 23 | <30 | - | >30 |
| hs-CRP mg/l | 0.5 | <1.0 | 1-3 | 3.1-10 |
| Lp-PLA2 ng/ml | 174 | <200 | 200-235 | >235 |
| Cardiac Myeloperoxidase pmol/l | 763 | <480 | - | >480 |

Visualized Plaque and Atherosclerotic Burden Assessment

Name: THOMAS DOB: Age: 71 Gender: Male Date: 11/13/13



*Plaque noted above was measured through an arterial area diameter reduction, which is deliberated by measuring the circumference of the outside of the vessel subtracting any visible stenosis.

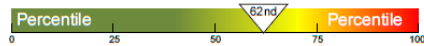
*Carotid velocities provided on reverse.

Carotid - IMT

Your average Carotid-IMT is 0.919

You are a 71 year old with arteries of a 76 year old Male.

This graph indicates your percentile score for similar sex and age.



A C-IMT of less than 0.60mm is generally considered healthy.

Technical Notes:

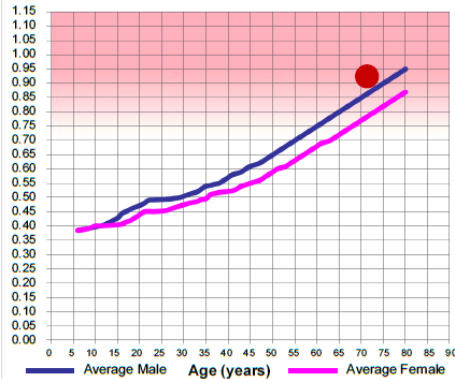
71 year old Male for cardiovascular risk stratification.

Physicians Notes:

Current CIMT Measurement

| Date | Age | CIMT | Percentile |
|----------|-----|-------|------------|
| Nov 2013 | 71 | 0.919 | 62nd |

Mean Distal 1 cm CCA IMT of General Population with No Coronary Heart History



Coronary Artery Calcium Score

C-150
Ex: 063856
Se: 63856
Im: 6
DFOV 475.0 mm

A

FRONT RANGE P I
GERBER^JEFFRY
20150430
512

R

No Calcium

kV 129.9
mA: 613
3.0 mm
Tilt: 0.0 degrees
100 ms
130342
W=1000,L=200

10mm/div

L

Calcium Risk

Can we... ?



Make America Healthy Again