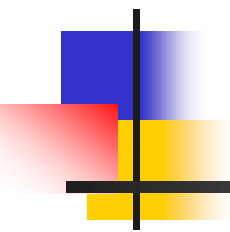


ΣΕΜΙΝΑΡΙΟ ΟΜΑΔΩΝ ΕΡΓΑΣΙΑΣ ΕΚΕ

Θεσσαλονίκη 20 Φεβρουαρίου 2010

Η δοκιμασία κόπωσης στη χρόνια στεφανιαία νόσο



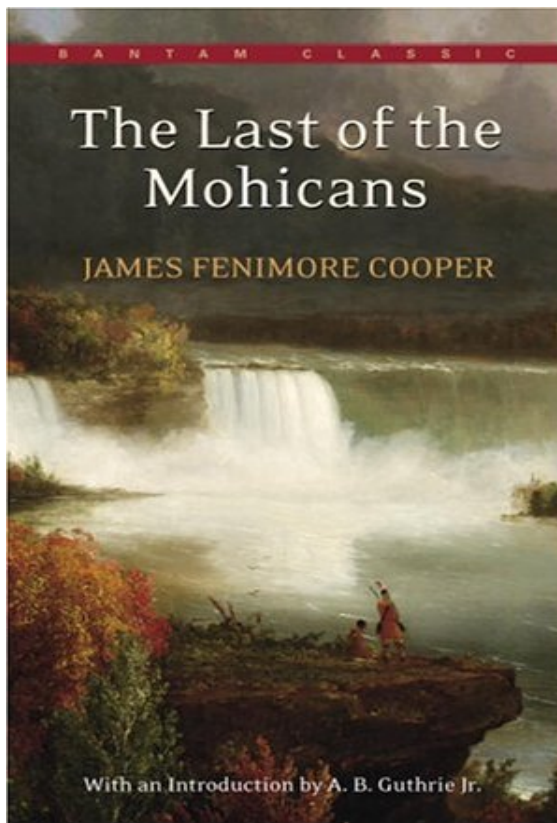
Θρασύβουλος Κ. Κυρατζόγλου MD, PhD

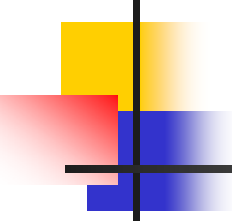
Καρδιολόγος

Διδάκτωρ Ιατρικής Σχολής Πανεπιστημίου Θεσσαλονίκης

Κομοτηνή

Clinical vignette



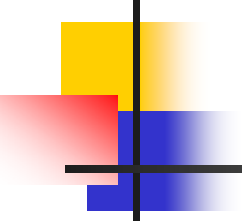


Άνδρας 47 χρόνων

ανώτερο τραπεζικό στέλεχος

Δευτέρα πρωί





τηλεφώνημα



προαγωγή

✓ *Το αυτοκίνητο του δεν
παίρνει μπρος*



✓ *Τα ταξί απεργούν*

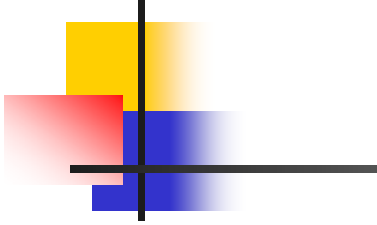


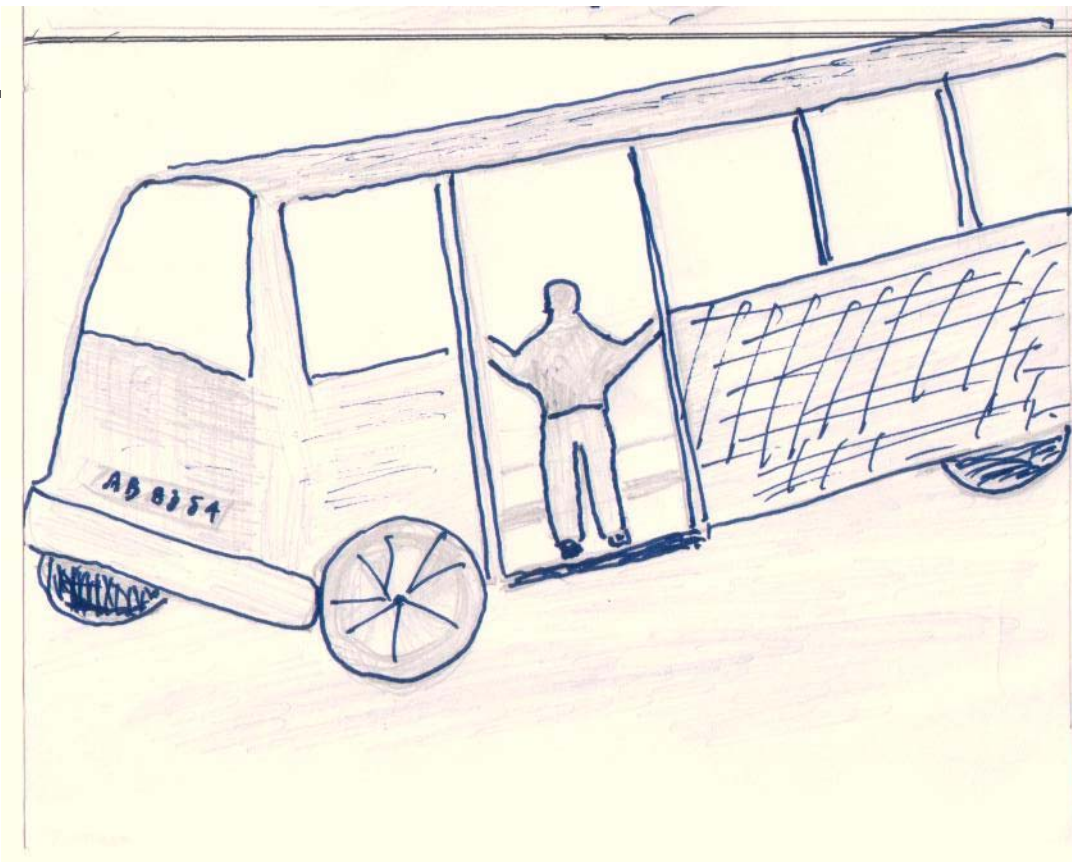
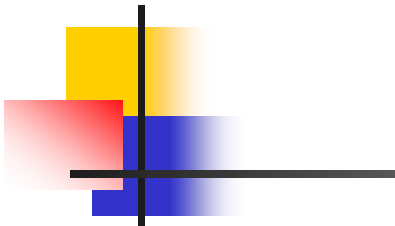
✓ *Το λεωφορείο τον προσπερνά*

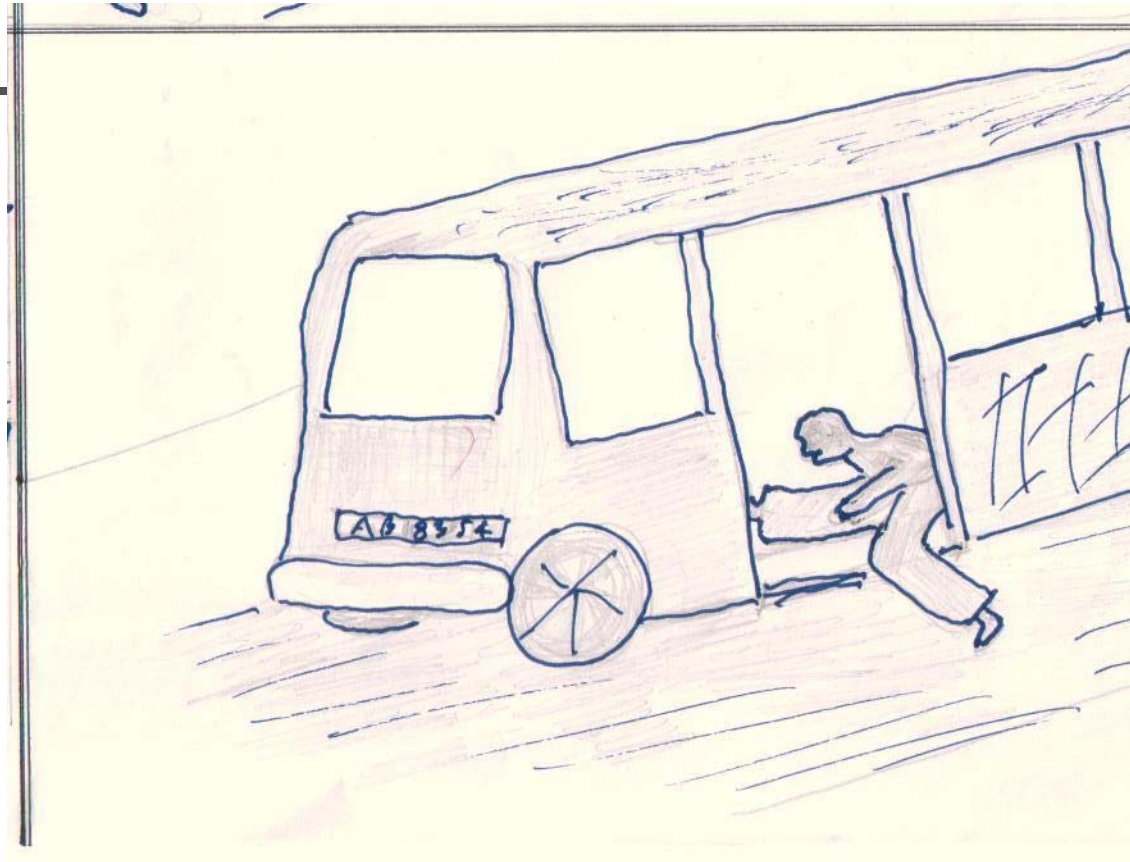
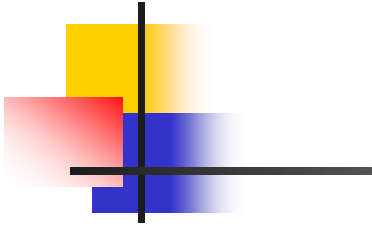


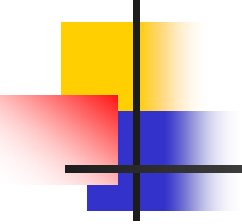
Ψυχικά έντονα φορτισμένος











E.D.



ECG:

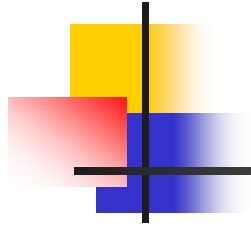
- ***non sustain VT***
- ***ST segment elevation (V5,V6)***

Troponin T . a) 1,8, b) 3,2 $\mu\text{g/L}$

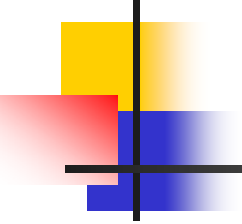


Coron. Angiogram (2on):

***Obtuse marginal vessel 40%
proximal stenosis***



Ειρηνία



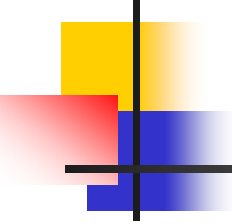
3 μέρες πριν...



ECG exercise test (-)

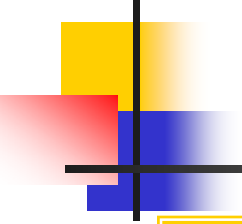
12min

Bruce stage IV



Εύσημα





Σήμερα

CCU



Εύσημα



Φλασμπάκ



Δυό χρόνια πριν...



Coron. Angiogram (1st):

***Obtuse marginal vessel 40%
proximal stenosis***



Πέντε Παράγοντες Κινδύνου

- 1. Κάπνισμα: περιστασιακό***
- 2. Σωματική άσκηση: ;***
- 3. Υπέρταση: 1 σταδίου***
- 4. FPG: >100 <126mg/dl***
- 5. TC 220mg/dl, HDLc 40mg/dl,
Tg155 mg/dl, LDLc149mg/dl***

Στα 2 τελευταία χρόνια

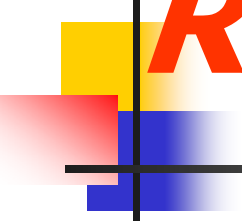
1. Κάπνισμα: ΟΧΙ

2. Σωματική άσκηση: ΝΑΙ

3. Υπέρταση: ΟΧΙ

4. FPG: >100, <126 mg/dl

***5. TC 170mg/dl, HDLc 45mg/dl,
Tg140 mg/dl, LDLc 97mg/dl***

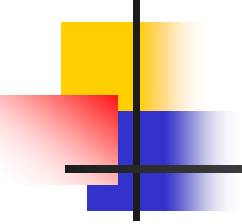


Rx

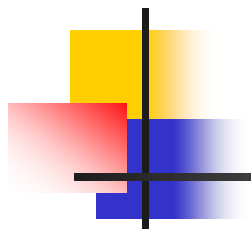
✓ ***Nebivolol 5mg***

✓ ***Atorvastatin 20mg***

✓ ***ASA 100mg***



Symptoms-free

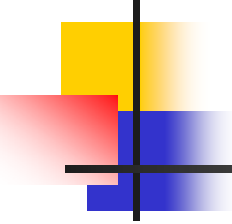


Comment

Chronic CAD

✓ ***Medical management***

✓ ***Adherence***



Risk stratification

<1%/yr

Framingham score 0,3%/yr



***Diversion
of time
course***

ECG stress test

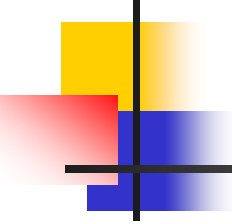


.. 'απόθανε'

Ζήτω ...

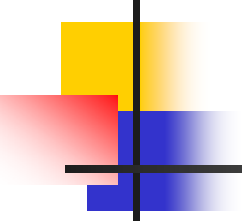


CTA



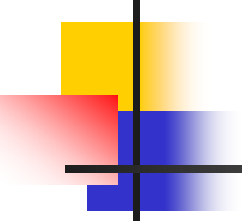
Guidelines

- ***Recommendations for Clinical Exercise Laboratories. AHA. Circulation 2009;119:3144-3161***
- ***Guideline Update for Exercise Testing. Gibbons et al 2002. ACC/AHA Practice Guidelines.***



Ερώτηση 1η

Υπάρχει ένδειξη για ΔΚ;

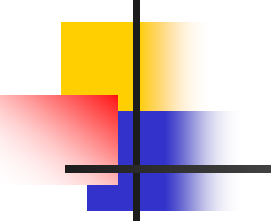


Απάντηση

NAI

Indication: class IIb

Level of evidence: B

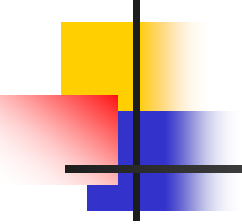


***Η έκβαση της ΔΚ
προδικάζει την πρόγνωση
με βάση***

***α) Λειτουργική
ικανότητα***

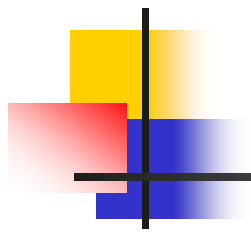
β) Ισχαιμία

γ) Αρρυθμιογένεση



Ερώτηση 2η

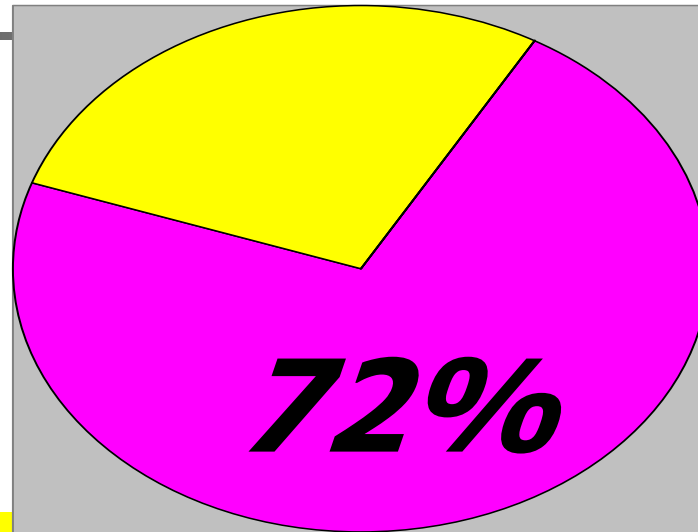
***Μήπως η ΔΚ... θα
έπρεπε να αποφευχθεί
...;***



Απάντηση

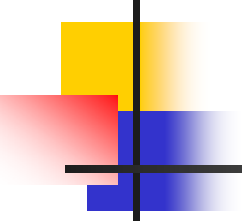
ΟΧΙ

ECG exercise tests



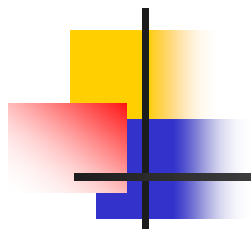
Office-based procedure

***Guideline Update for Exercise Testing. Gibbons et al
2002. ACC/AHA Practice Guidelines.***



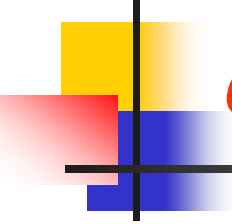
Ερώτηση 3η

***...μήπως η λήψη
έγγραφης
συγκατάθεσης πριν την
ΔΚ επιβαλλόταν ...;***



Απάντηση

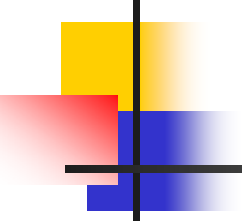
ΝΑΙ



Η λήψη έγγραφης συγκατάθεσης πριν την ΔΚ

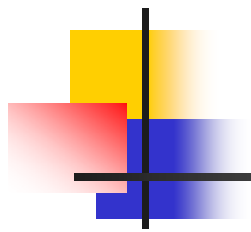
MUST

***Recommendations for Clinical Exercise Laboratories.
AHA. Circulation 2009;119:3144-3161***



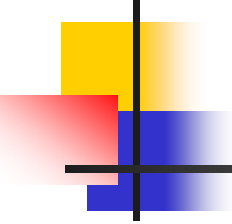
Ερώτηση 4η

***Στην συγκεκριμένη
περίπτωση...
...ψευδώς αρνητική ΔΚ...;***



Απάντηση

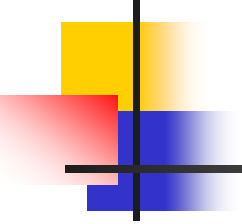
ΟΧΙ



...αληθώς αρνητική ΔΚ...

Ο ασθενής...

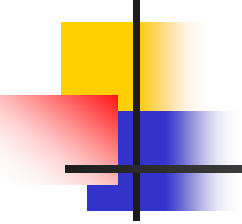
επέζησε



Ερώτηση 5η

Calcium score

***...ορθολογική εκτίμηση της
πρόγνωσης***



Απάντηση

NAI

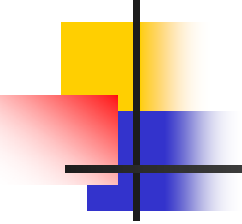
2 χρόνια πριν:

Framingham score 1,6/yr (moderate CHD risk)

Indication: class U6 (IIa)

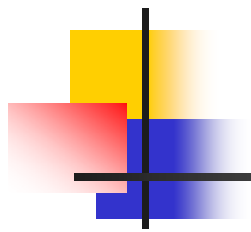
***Hendel et al. Appropriateness Criteria for CCT/CMR.
JACC 2006;48:1475-97.***

1st Workshop Πανελ. Καρδιολ. Συνέδριο. 29/10/2009

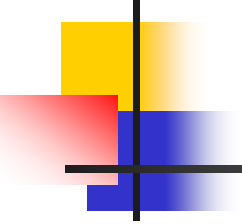


Calcium score

0



Comment



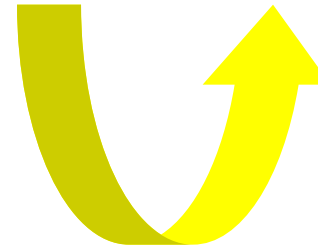
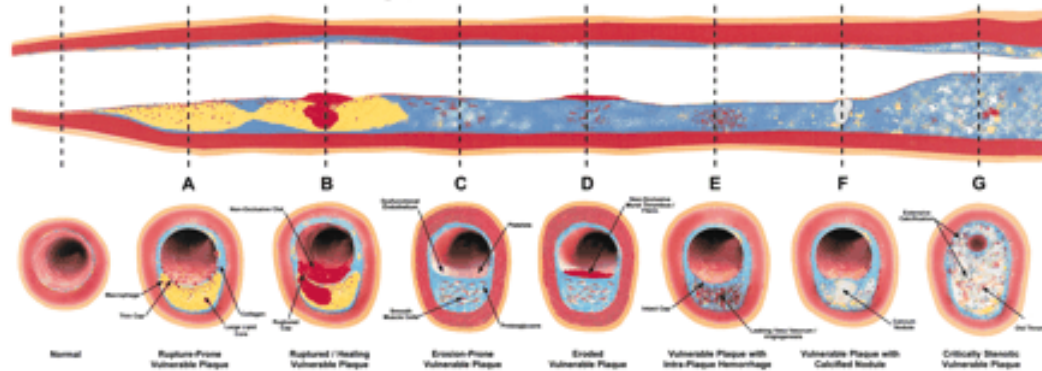
Coronary plaque event model

➤ ***Obstructive***

➤ ***Nonobstructive***

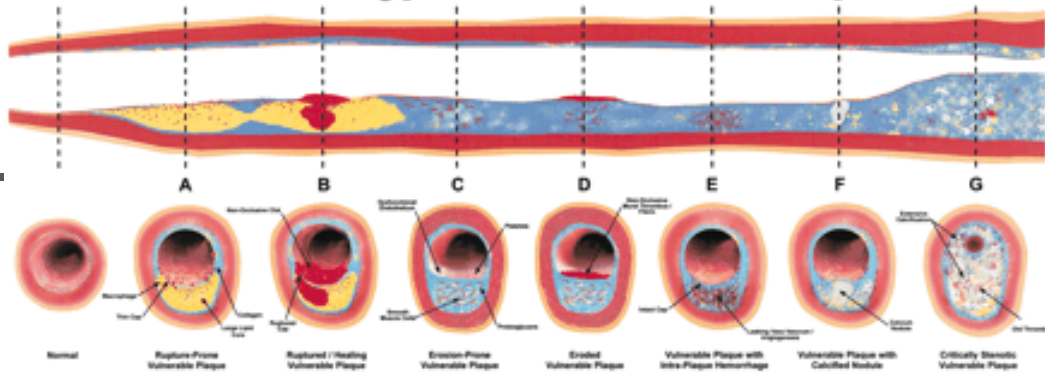
Gibbons et al. ACC/AHA Practice Guidelines, 2002

Different Types of Vulnerable Plaque



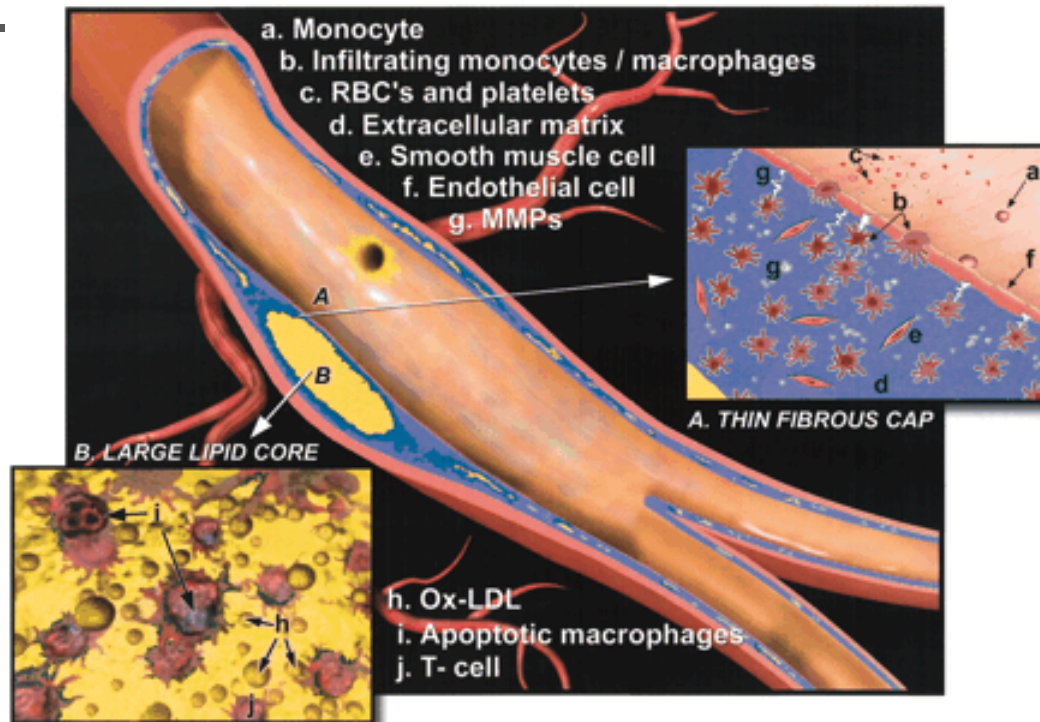
***Naghavi M et al. (Consensus Document) Circulation
2003;108:1664-1672.***

Different Types of Vulnerable Plaque



Stepwise fashion

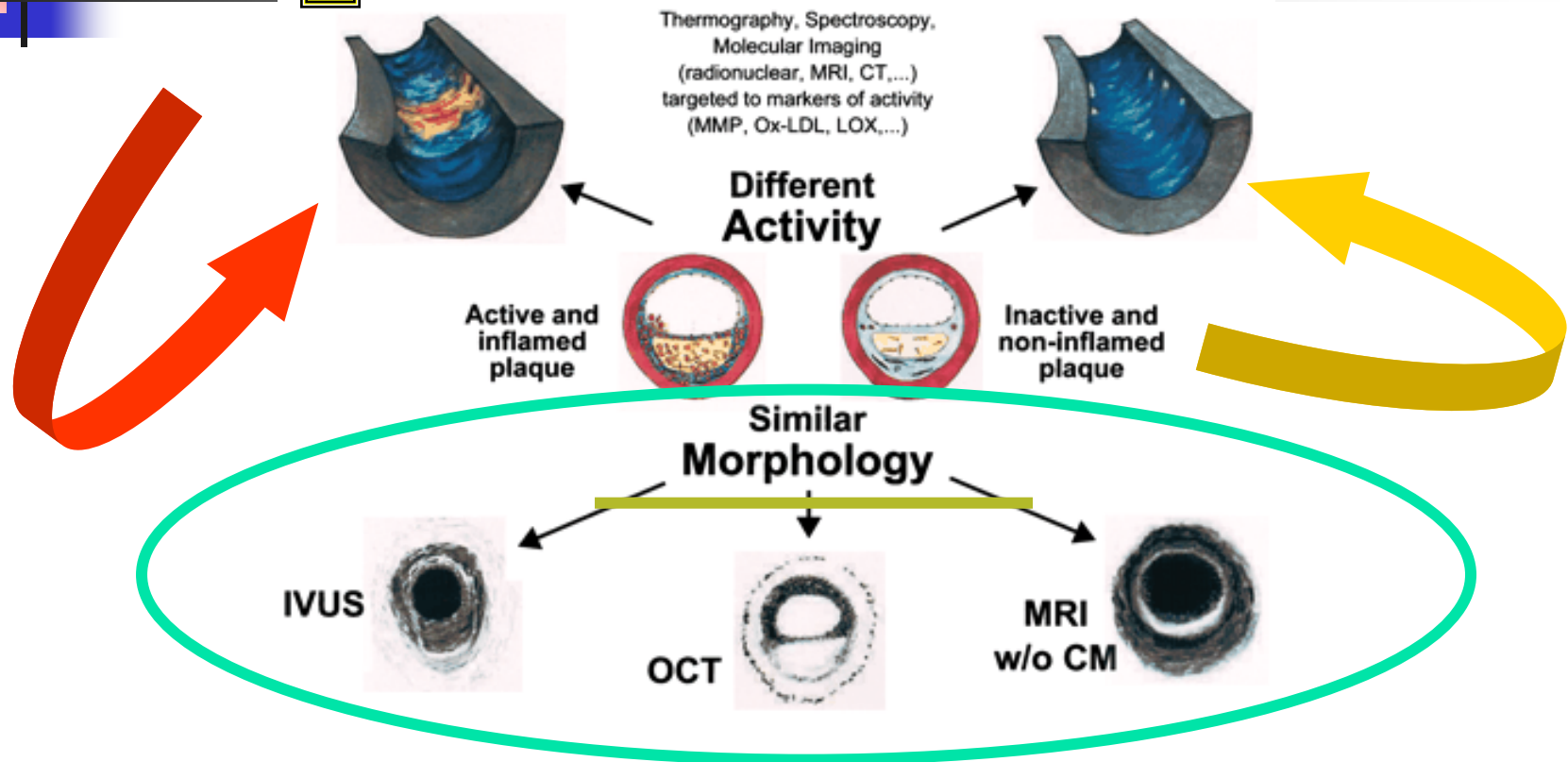
***Naghavi M et al. (Consensus Document) Circulation
2003;108:1664-1672.***



***Naghavi M et al. (Consensus Document)
Circulation 2003;108:1664-1672.***

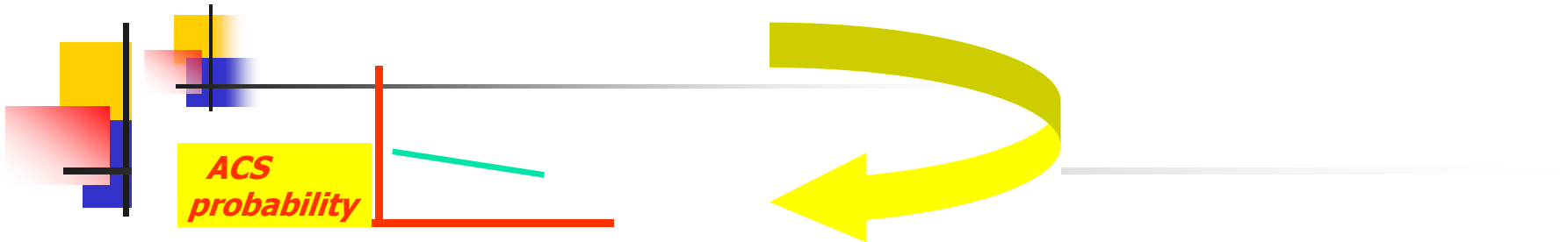
ACS

Morphology vs. Activity Imaging



Naghavi M et al. (Consensus Document) Circulation 2003;108:1664-1672.

Nonobstructive model

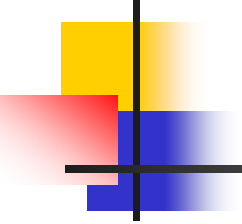


Exercise Capacity

Survival rate



Exercise Capacity



Duke treadmill score

Exercise time (min) – (5 x mm ST deviation) – (4 x angina index)

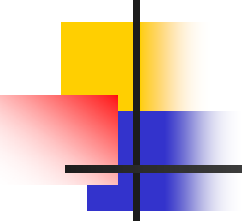
Angina index:

0=none

1= non-limiting

2= exercise-limiting

Mark DB et al. Ann Intern Med 1987;106:793-800



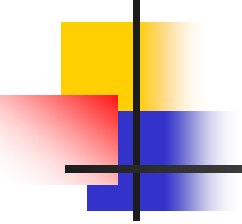
Duke treadmill score

 **+7**

3 vessel disease

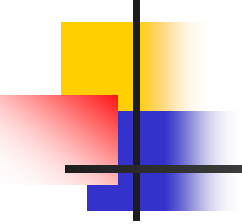
5 yr survival rate 93%

Mark DB et al. Ann Intern Med 1987;106:793-800



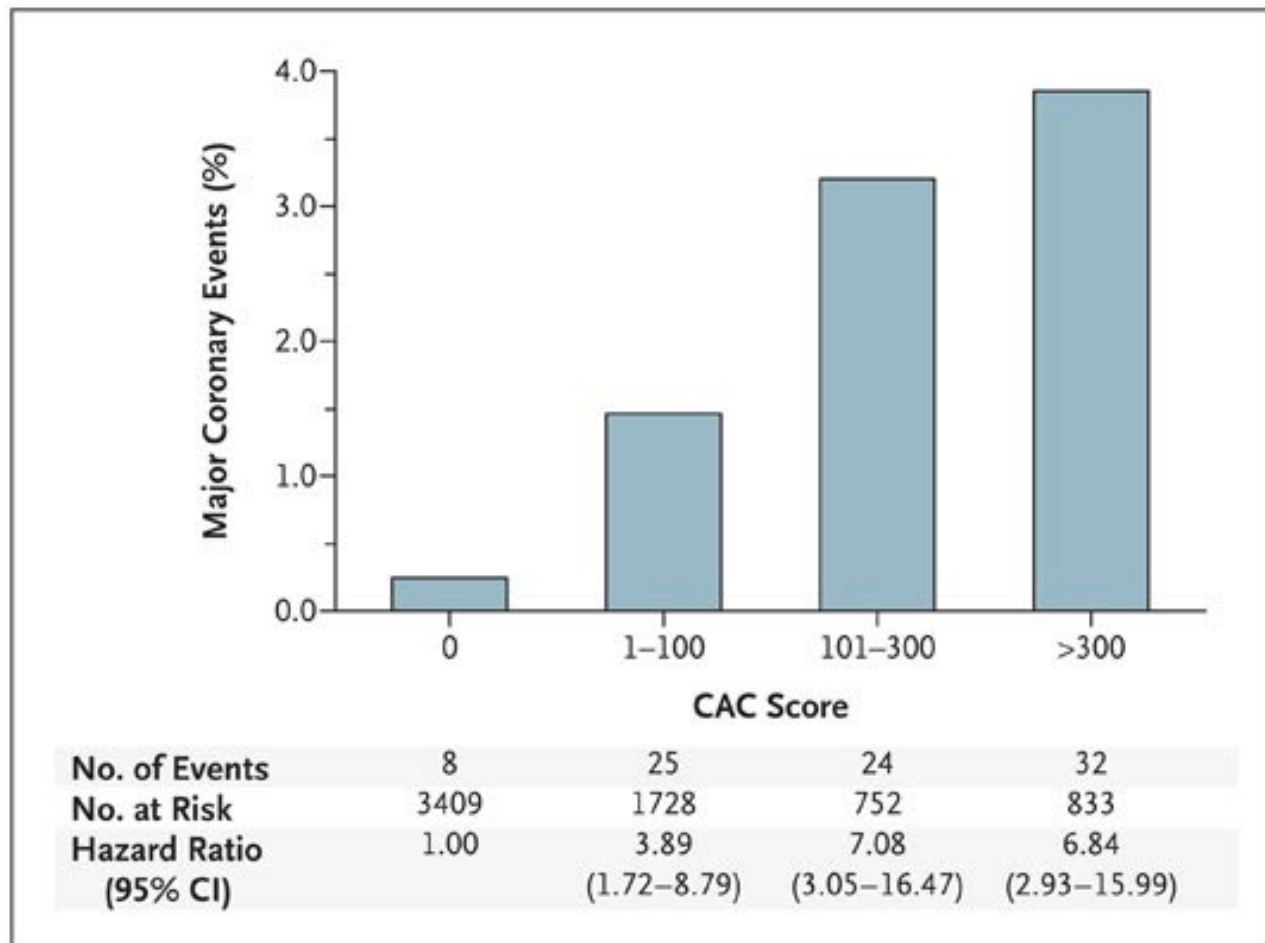
Duke treadmill score

+12

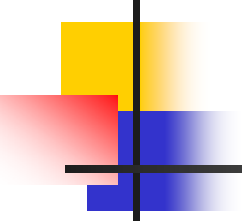


Calcium score

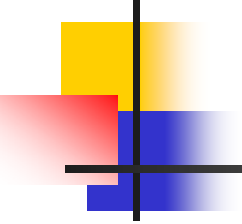
0



Bonow RO. NEJM 2009;361:990-7



***Τα φαινόμενα
ενίστε
απατούν...***



16% των αθηρωματικών πλακών

Calcium score

0

1st Workshop Πανελ. Καρδιολ. Συνέδριο. 29/10/2009

Gottlieb I et al . JACC 2010;55:627-634.



Calcium score

***ΜΑΛΑΚΗ
ΑΘΗΡΩΜΑΤΙΚΗ
ΠΛΑΚΑ***

0

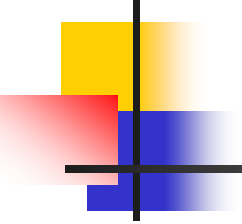
Bonow RO. NEJM 2009;361:990-7



ECG stress testing

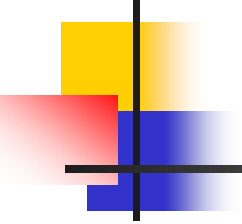
1918 - 2018

Bousfield G. Angina pectoris. Changes in ECG. .. Lancet 1918;2:457



ECG Exercise Testing

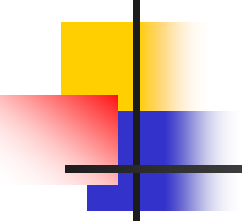
NORMAL



*...στην
περίπτωσή μας*

METS

14



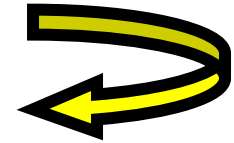
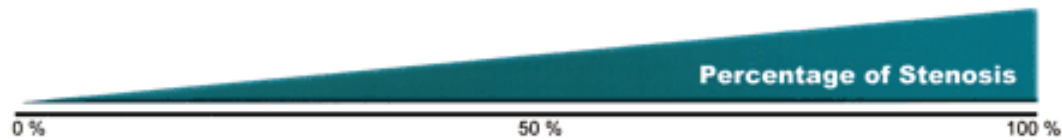
AMI

- ***Abrupt***
- ***Unpredictable***
- ***Not time-dependent***

Giroud D et al. Am J Cardiol 1992;69:729-732

Correlation between *a*, *b* & *c*

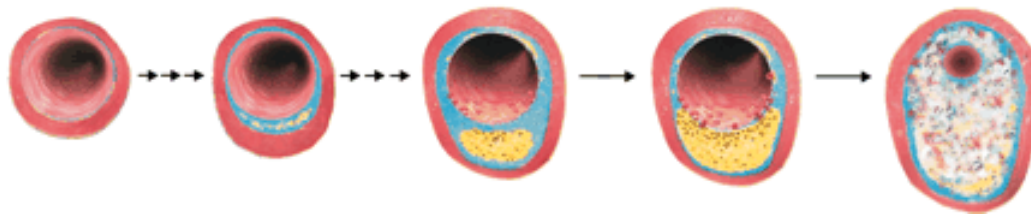
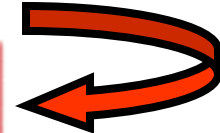
b



a



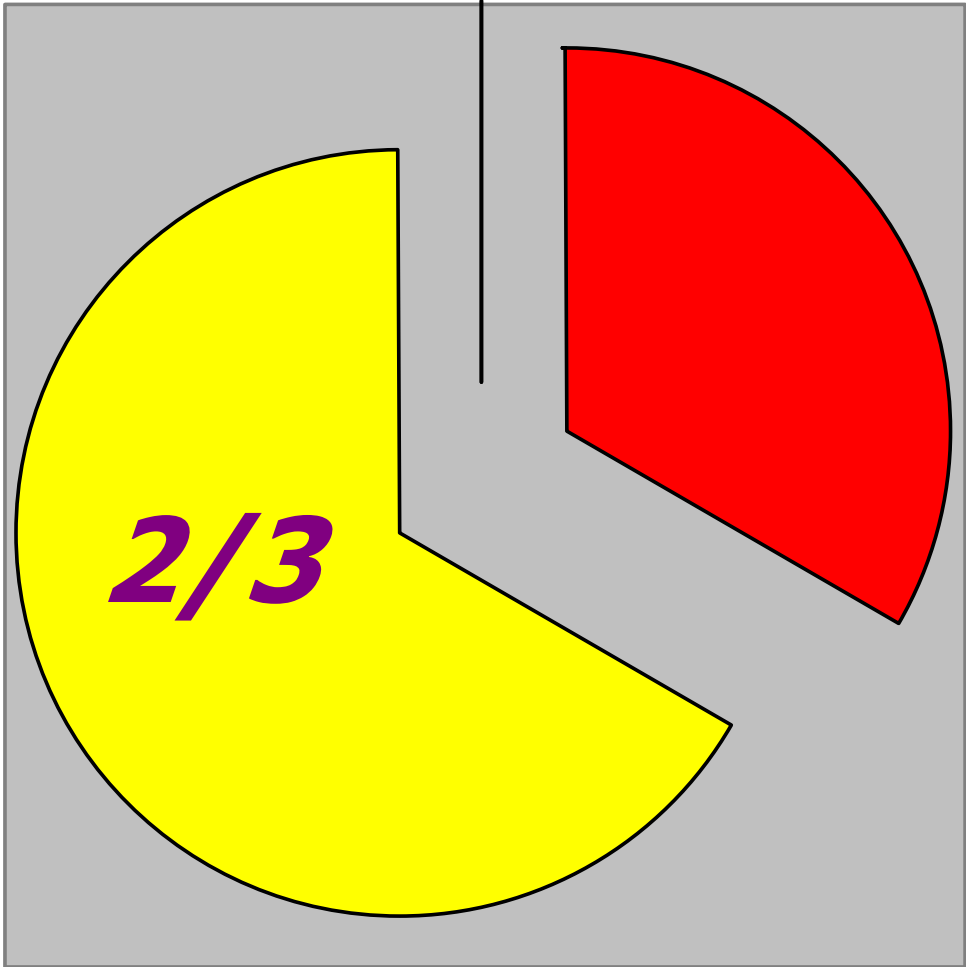
c



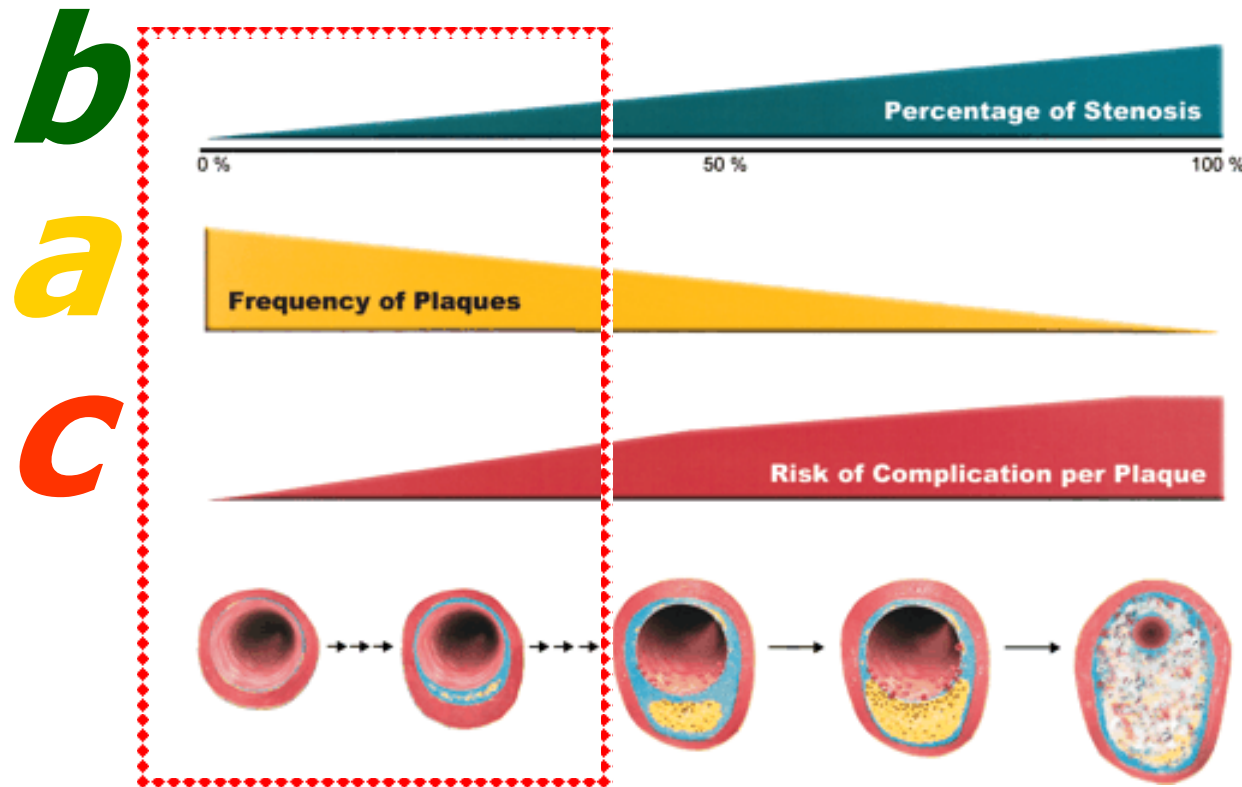
Naghavi M et al. Circulation 2003;108:1664-1672

AMI

***Non critical
stenoses***

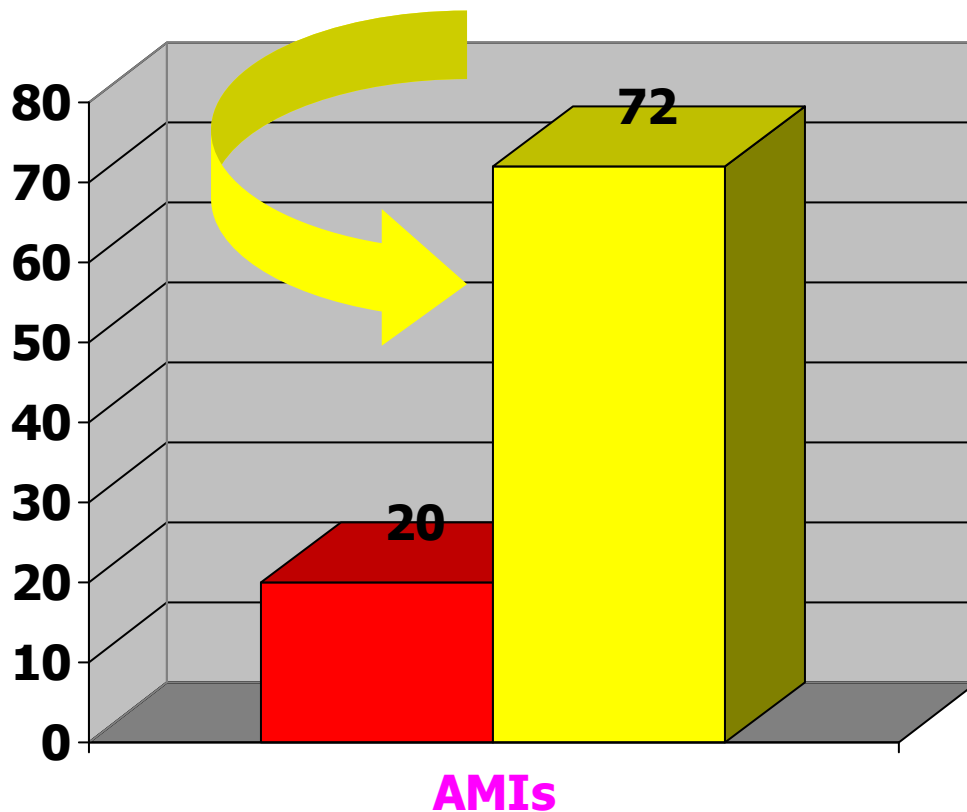


Correlation between *a*, *b* & *c*



Naghavi M et al. Circulation 2003;108:1664-1672

*...η ένοχη βλάβη για τη νέκρωση
στο 78% των περιπτώσεων δεν
ήταν η πιο σοβαρή από τις άλλες
στενώσεις...*

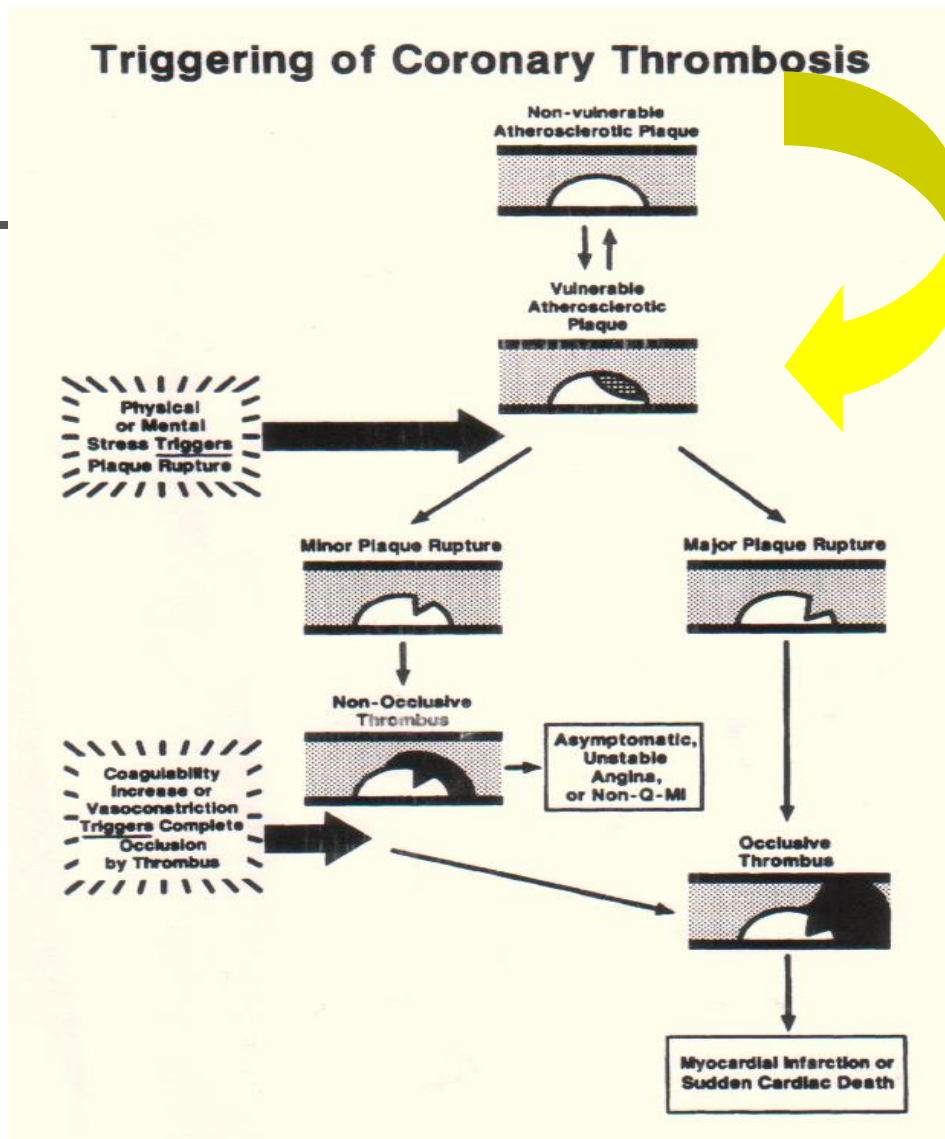


92 ami

■ Stenoses
>50%
■ Stenoses
<50%

Giroud D et al. Am J Cardiol 1992;69:729-732

...με καμβά το πιο πιθανό σενάριο...



Muller JE et al. Circulation. 1989; 79:733-743

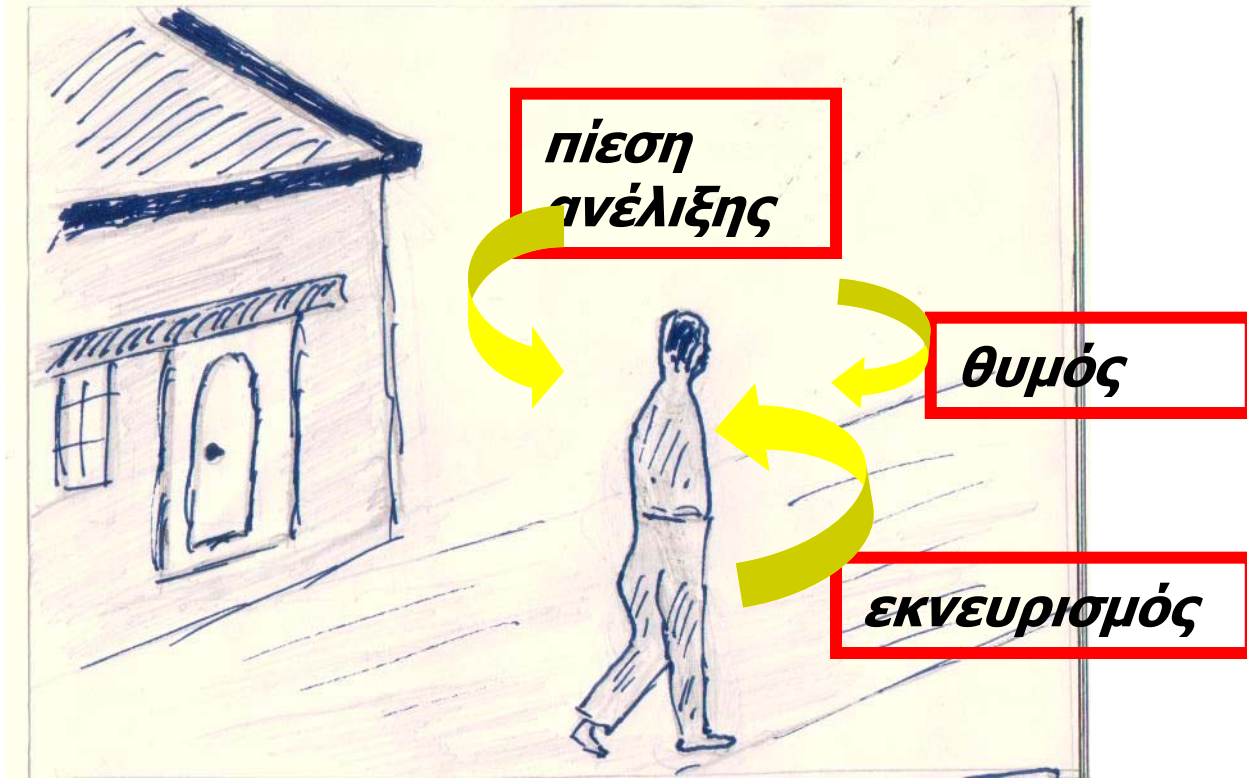


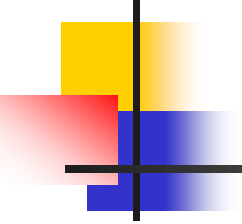
Consensus Document



Naghavi M et al. Circulation 2003;108:1664-1672

Εντονη διανοητική φόρτιση





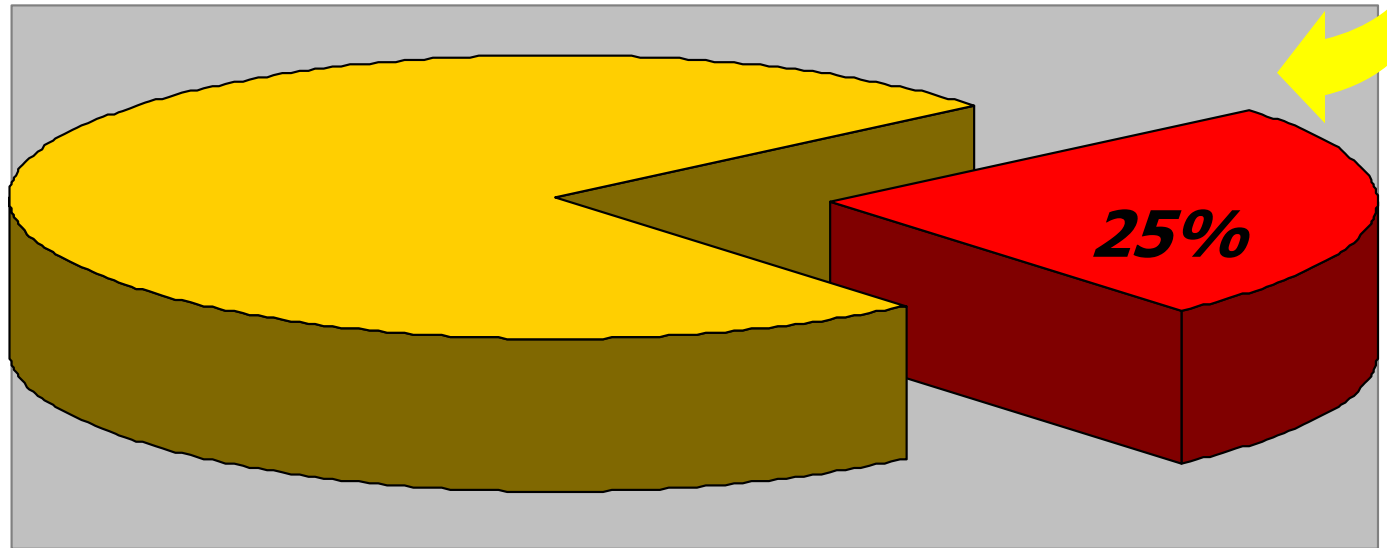
Mental Stress

AMI

Hazard ratio: 9

***Ischemic
Events***

***Mental
stress***



***«Η δοκιμασία διανοητικής
άσκησης...
για τη στεφανιαία νόσο;»***

Μουλόπουλος Σ (Editorial) . ΗJC 2009,50:67-70

..crescendo of physical stress ...



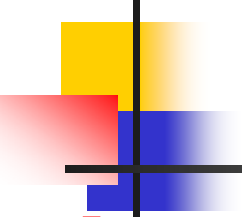


Non Q-STEMI



Μικρή ομολογία

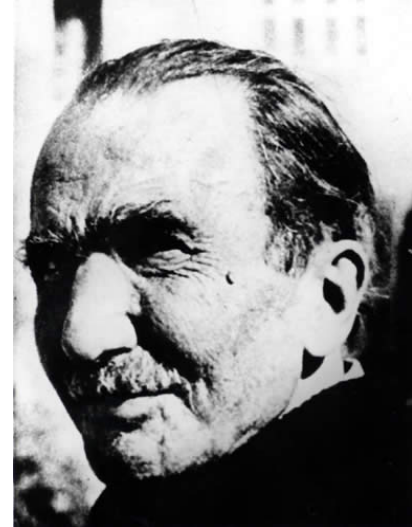
***...διάθεση για
ρήξη &
αναστροφή***

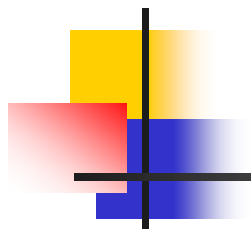


***'Να διασαλέψεις την τάξη,
να συντρίψεις το πρωτόκολλο***

.../

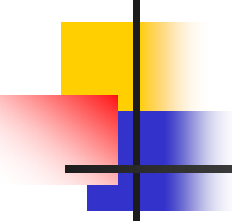
Ν. Καζαντζάκης





***...ένα περιστατικό... έρχεται να
ταράξει τα νερά...***

***...να προσδώσει ζωντάνια στην
ψυχρή εισήγηση...***



***...ασυμπτωματικός στεφανιαίος
ασθενής χωρίς κριτική
στένωση...***



***..προβλεπτική
ικανότητα...***



***‘Σοφοί δε
προσιόντων’.
Κ. Καβάφης***



ArtΩ3