

▶ بسم الله الرحمن الرحيم

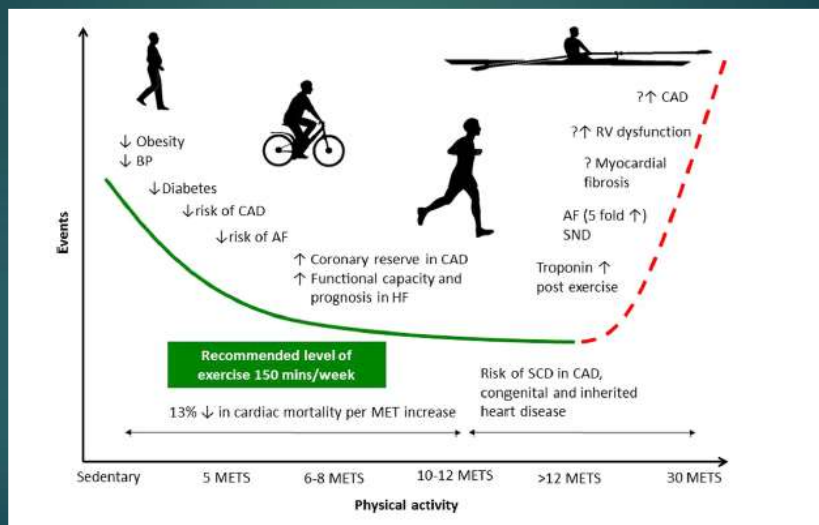
Can a biomarker
predict negative
exercise ECG???

OSAMA RIFAIE, MD,PHD,FSCAI
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CARDIO EGYPT 2017

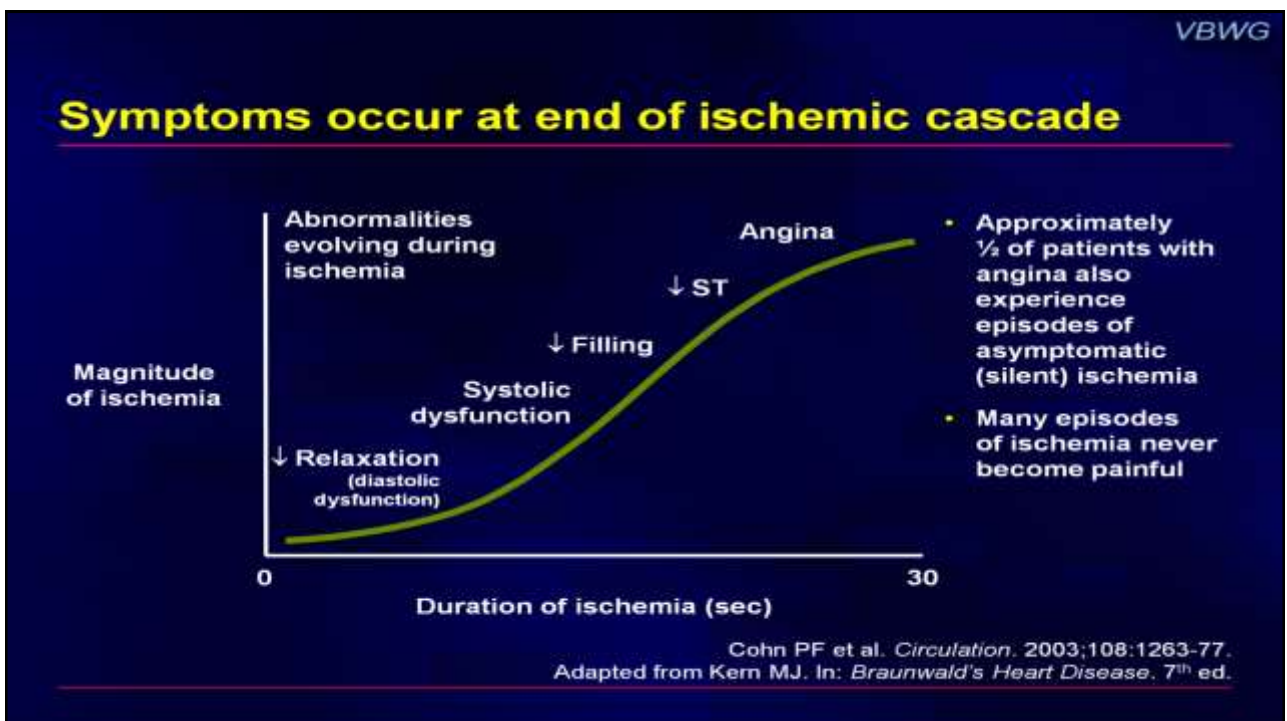
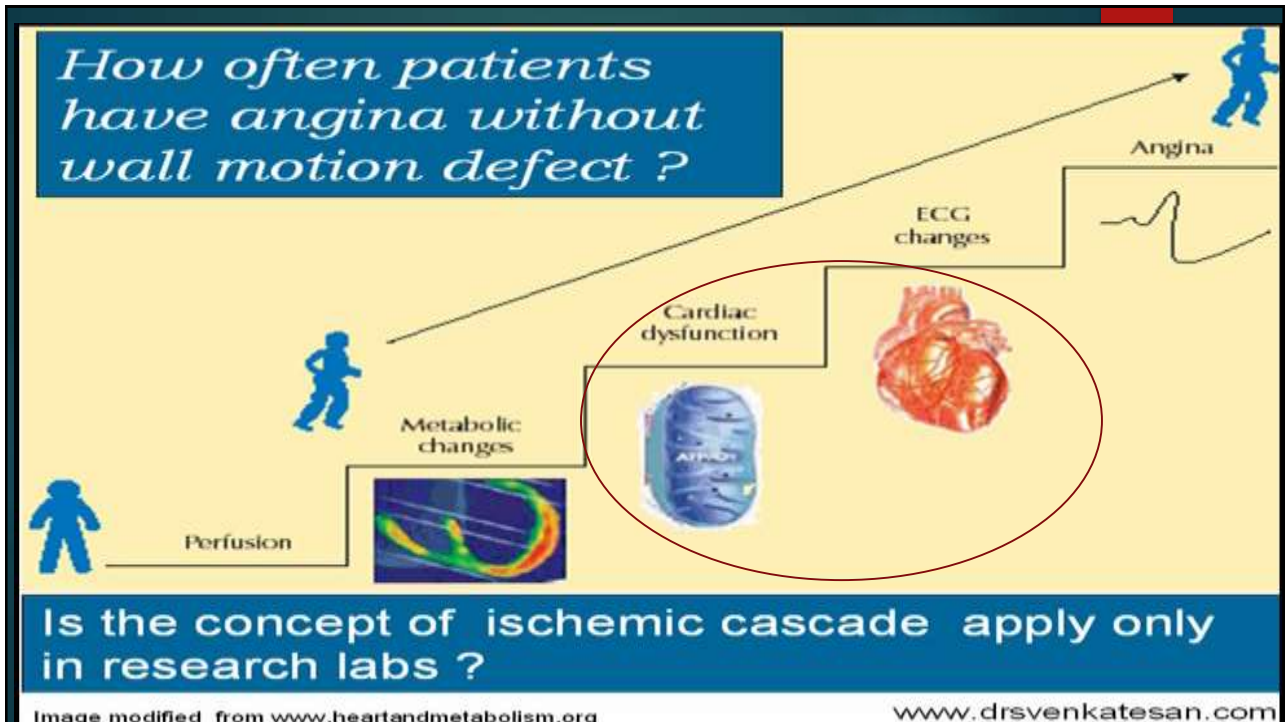
Exercise ECG for IHD

- ▶ Simple, low cost
- ▶ Reproducible in most cases
- ▶ Sensitivity= 40-60% (Circulation 1989;80:87-98.)
- ▶ Specificity= 60-70% (Circulation 1989;80:87-98.)
- ▶ SPECT markedly improves both

U shaped curve of exercise



TRENDS IN CARDIOVASCULAR MEDICINE 26 (2016) 232-240



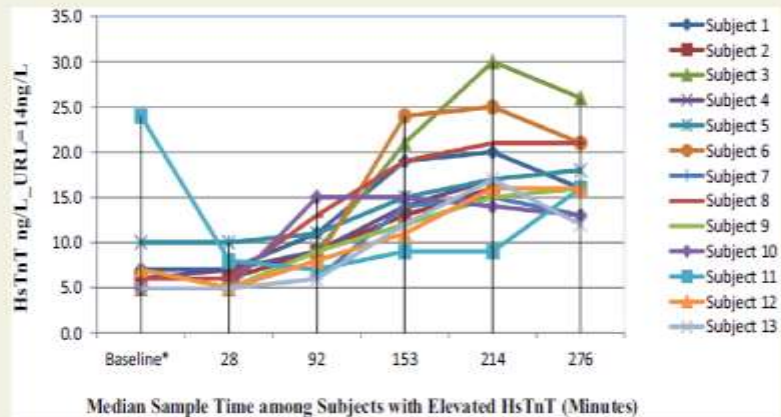
Biomarkers and exercise ??

- ▶ Troponin
- ▶ BNP and NT /pro BNP
- ▶ CKMB
- ▶ Ischemia modified albumin

Creatine Kinase and exercise

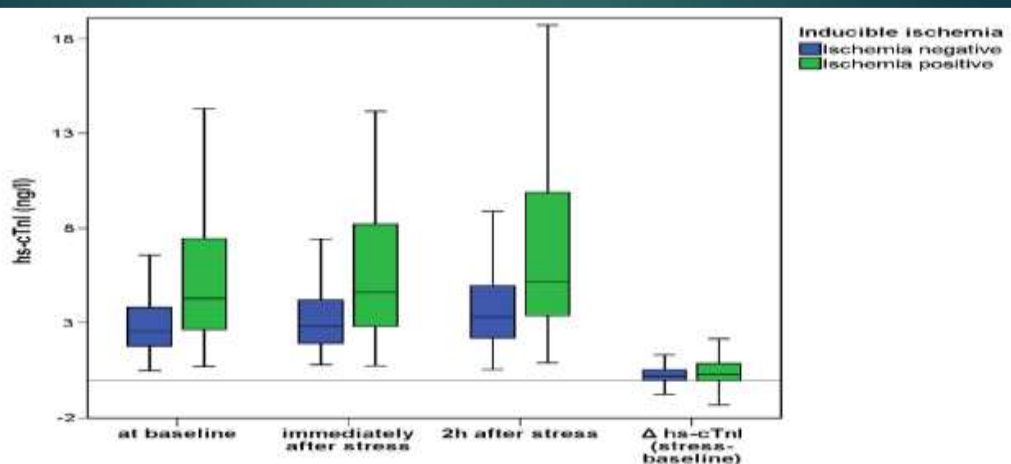
- ▶ Total CK was shown to increase after strenuous exercise due to release from skeletal muscles
- ▶ CK MB was also increased after exercise yet less than 6% of total CK
- ▶ CK MB could not be used to diagnose reversible myocardial ischemia but only for MI

HsTnT elevation after exercise in normal subjects 12% !!!!!

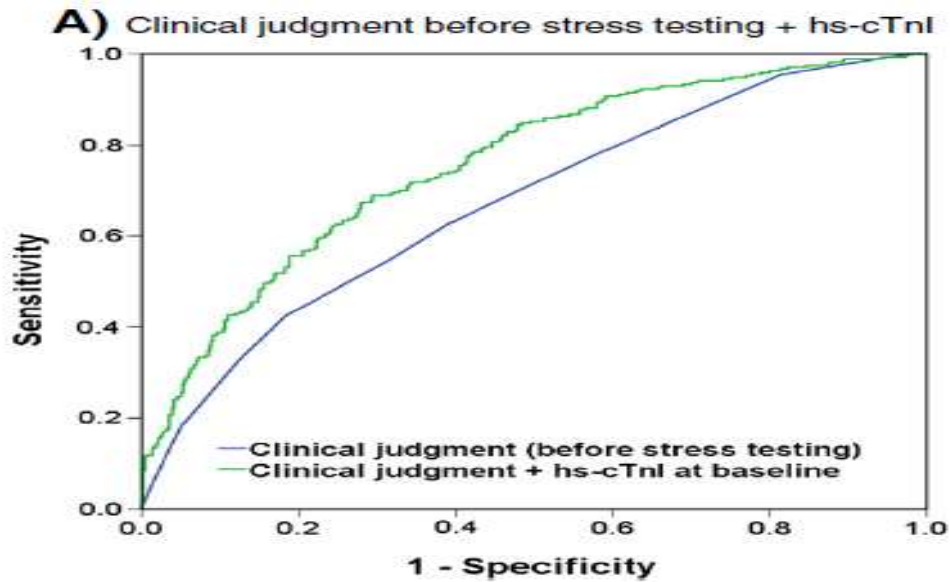


Heart, Lung and Circulation (2016) xx, 1-7
1443-9506/04/336.00
<http://dx.doi.org/10.1016/j.hlc.2016.11.004>

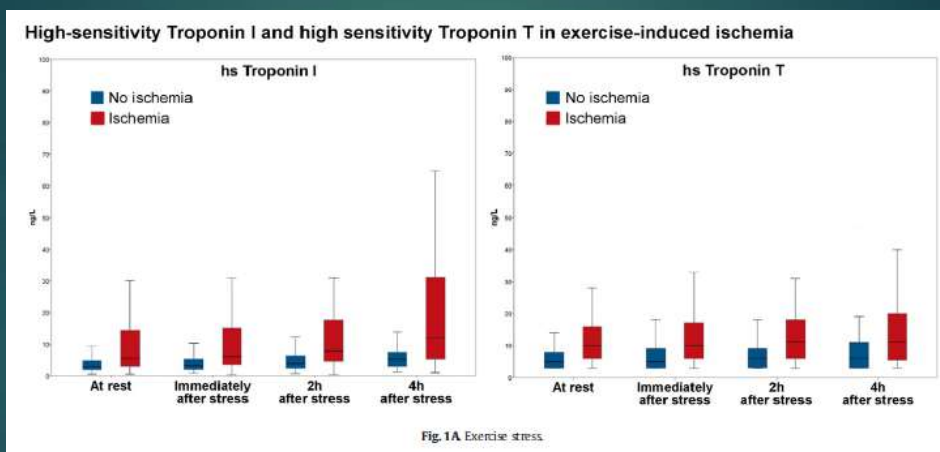
Hs-TnI after exercise SPECT



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1443-9506/04/336.00
<http://dx.doi.org/10.1016/j.hlc.2016.11.004>

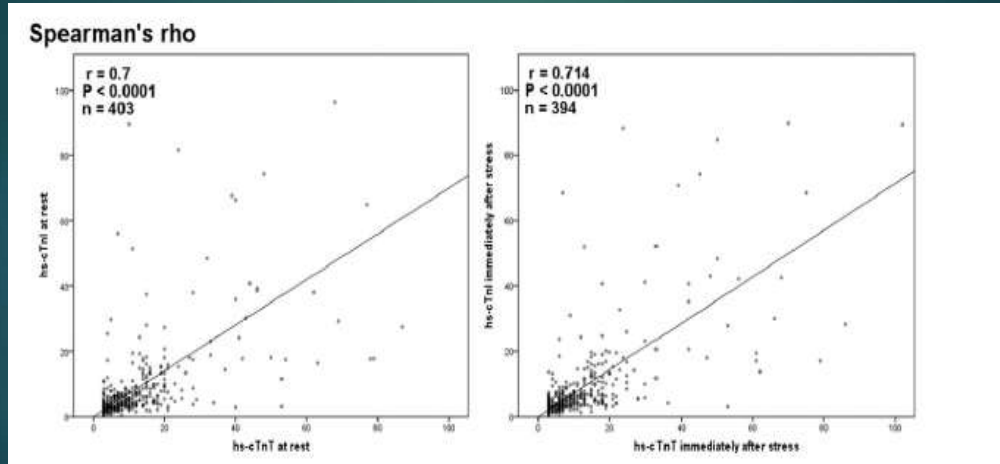


TnT vs TnI after exercise SPECT



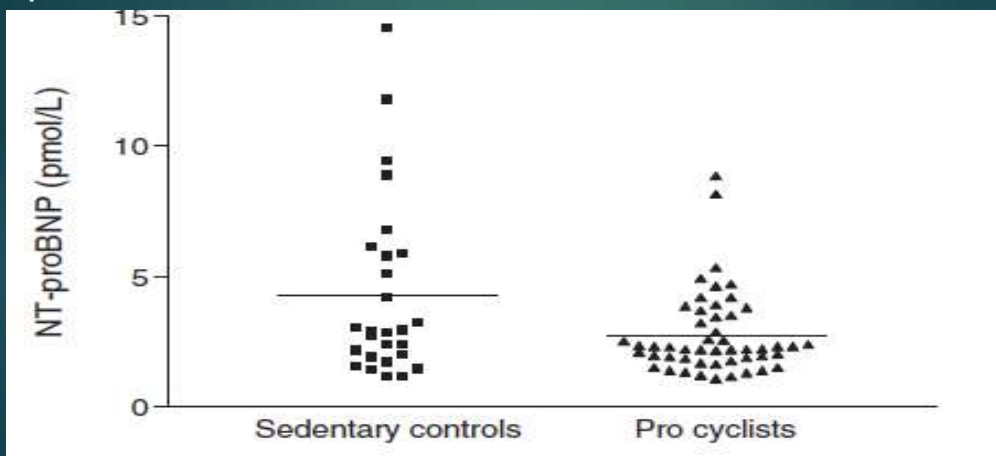
S.M. Sou et al / Clinical Biochemistry 49 (2016) 421–432

Correlation of TnT and TnI for myocardial ischemia detection



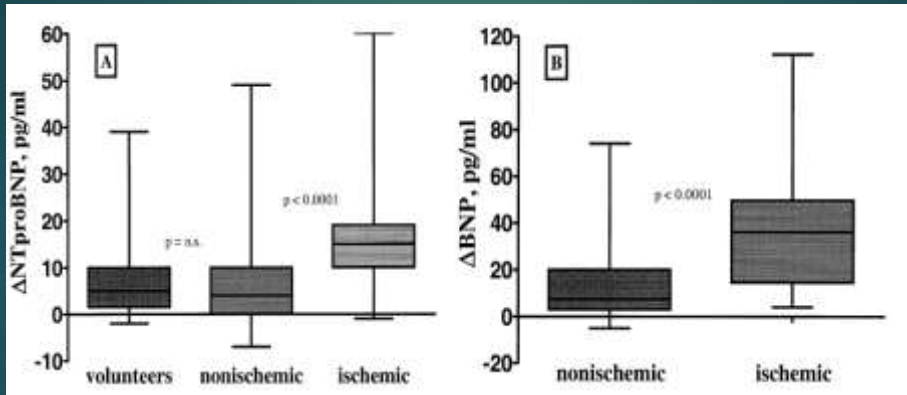
S.M. Sou et al / *Clinical Biochemistry* 49 (2016) 421–432

NT-proBNP in atheletes vs sedentary persons



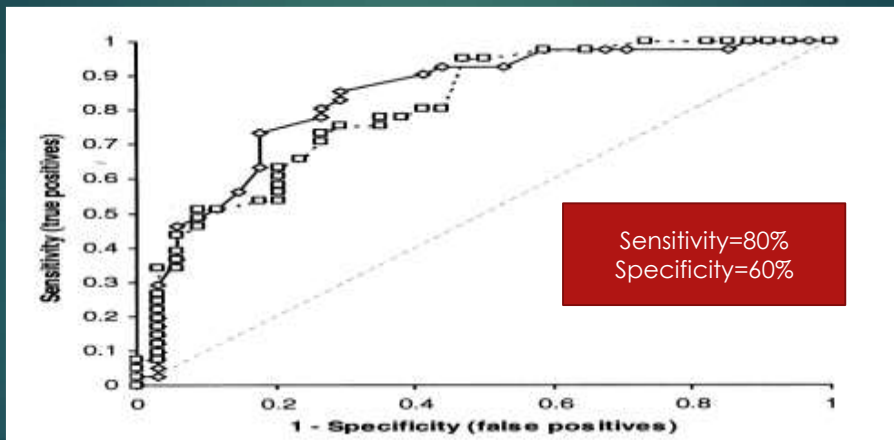
Clinica Chimica Acta 367 (2006) 175–180

BNP and Pro BNP for diagnosing IHD after exercise SPECT



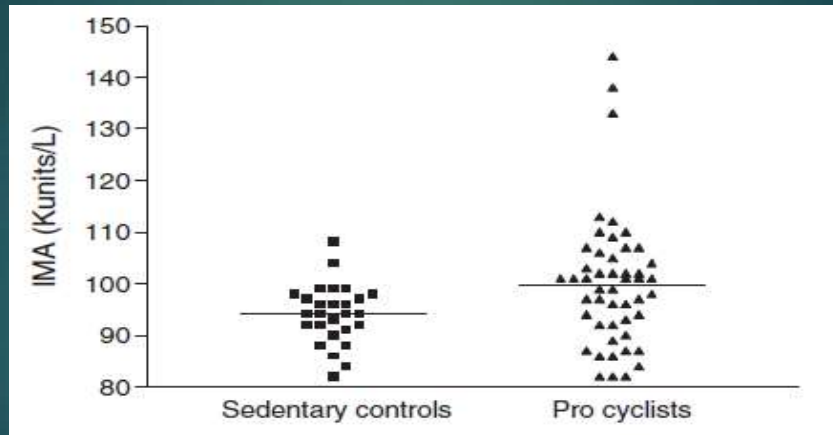
JACC Vol. 44, No. 10, 2004
November 16 2004:1980-7

ROC curve for prediction of IHD by BNP



JACC Vol. 44, No. 10, 2004
November 16 2004:1980-7

Ischemia modified albumin and exercise



Clinica Chimica Acta 367 (2006) 175–180

IMA and IHD

- ▶ Ischemia modified albumin increases with ischemia
- ▶ It was found a good negative test to rule out ACS

F. Koc et al. / *Rev Esp Med Nucl Imagin Mol.* 2012;31(4):202–206

Conclusion

- ▶ Despite the useful role of biomarkers in ACS ,their role in predicting ischemia after exercise ECG is not well established
- ▶ High cost , several methods for measurement and variable cut off values for normal serum levels
- ▶ When combined with clinical data, they provide better predictive value for IHD after Exercise ECG