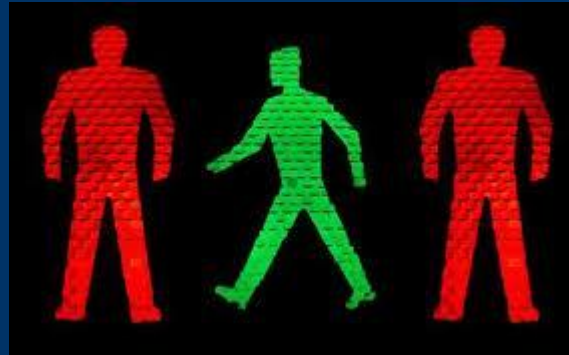


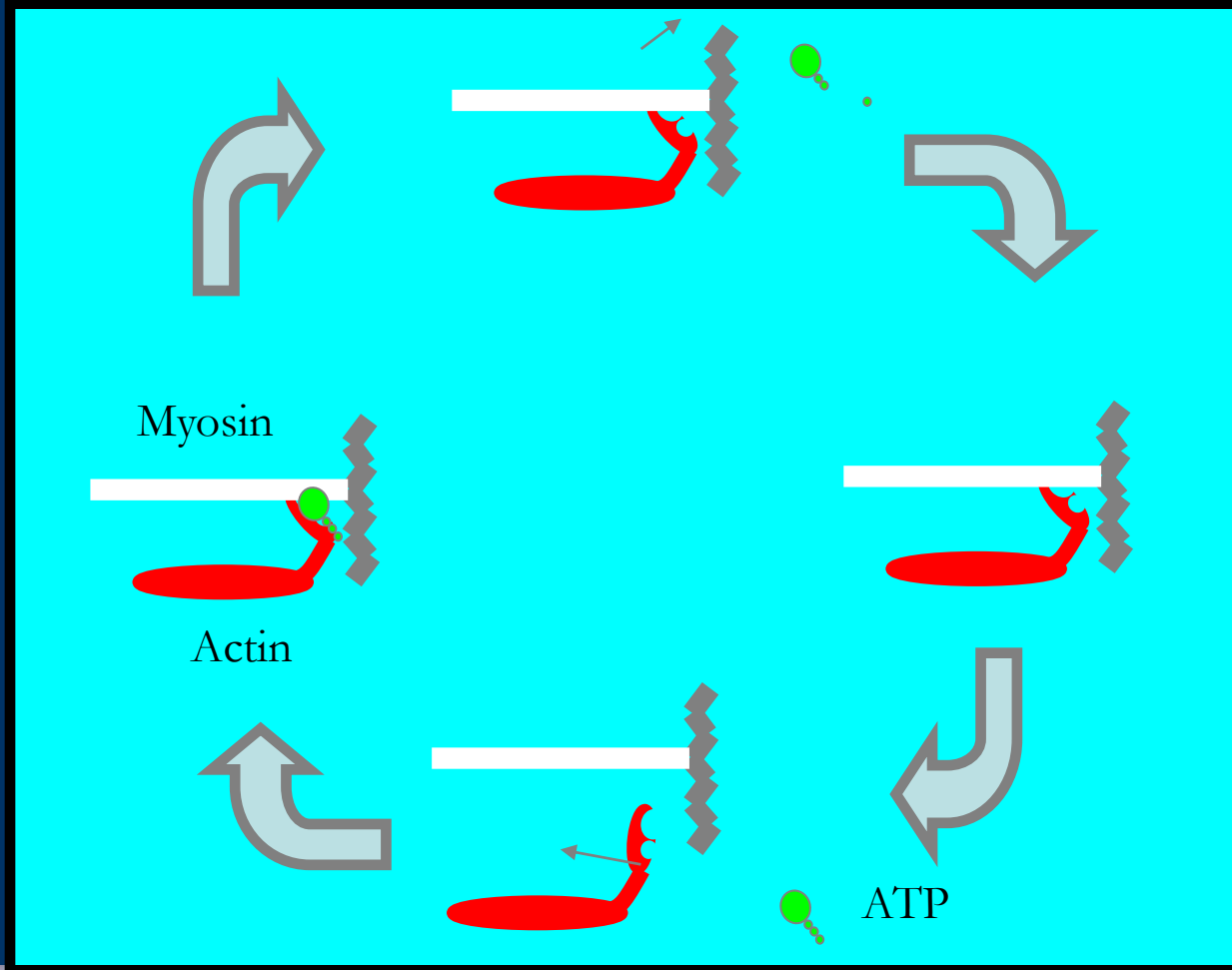
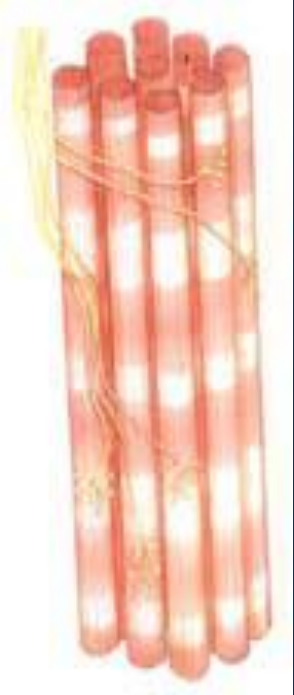
Exercise: An under-used diagnostic approach in the PAD patients

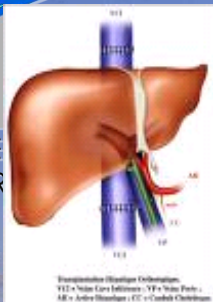
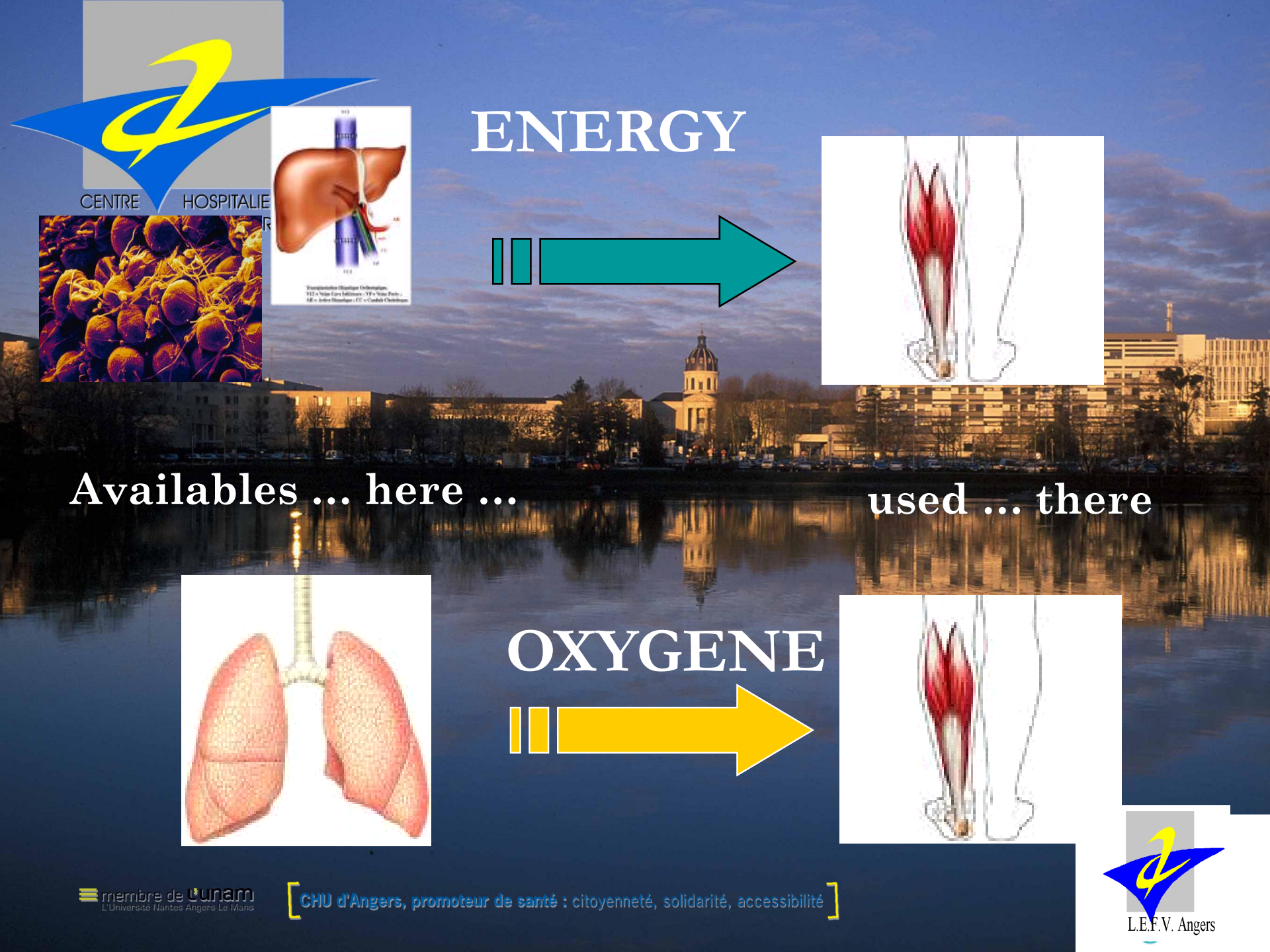
P Abraham, UMR CNRS 6214/ INSERM 1083

Why should exercise tests be done¹?

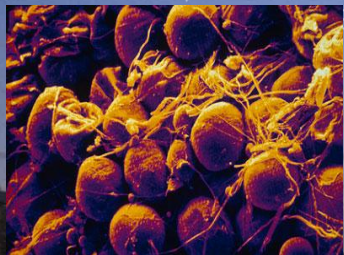
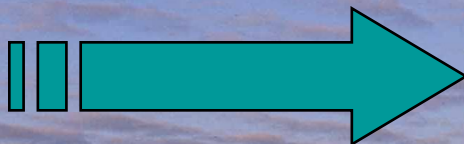


Pain first occurs at
exercise





ENERGY



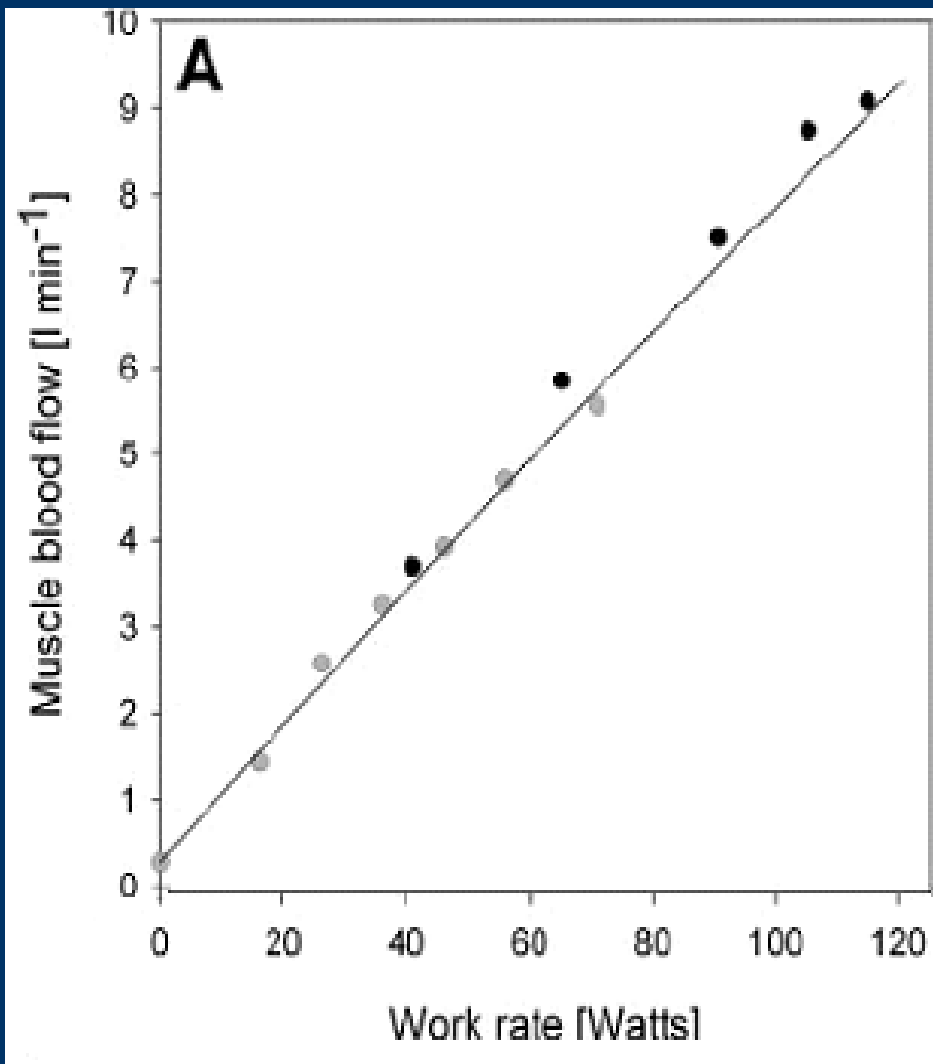
Availables ... here ...

used ... there



OXYGENE





Liguzinski, Am J Physiol 2007

Andersen J Physiol 1985

+

Saltin J Exp Biol 1985

Why should exercise tests be done ² ?



Angina

Dyspnea

Claudication

WHY NOT ?

Exercise
test

Exercise
test

?

>>> diagnosis

Why should exercise tests be done ³ ?



Rutherford Grade/ Category

Clinical description

Objective criteria

0 / 1 Claudication

Completes treadmill;

I / 3 Claudication ++

Cannot complete treadmill

†Five minutes at 2 mph on a 12% incline.

Classification of Leriche & Fontaine

Stade 2 a : MWD < 250 m

Stade 2 b : MWD > 250 m

>>> choice of treatment

Vasc Surg : Dormandy JA, Rutherford RB, for the TransAtlantic Inter-Society Consensus (TASC) Working Group, 1995

Why should exercise tests be done ⁴ ?



HISTORY

TREADMIL

L



Limited

Unlimited

Limited

71 %

14%

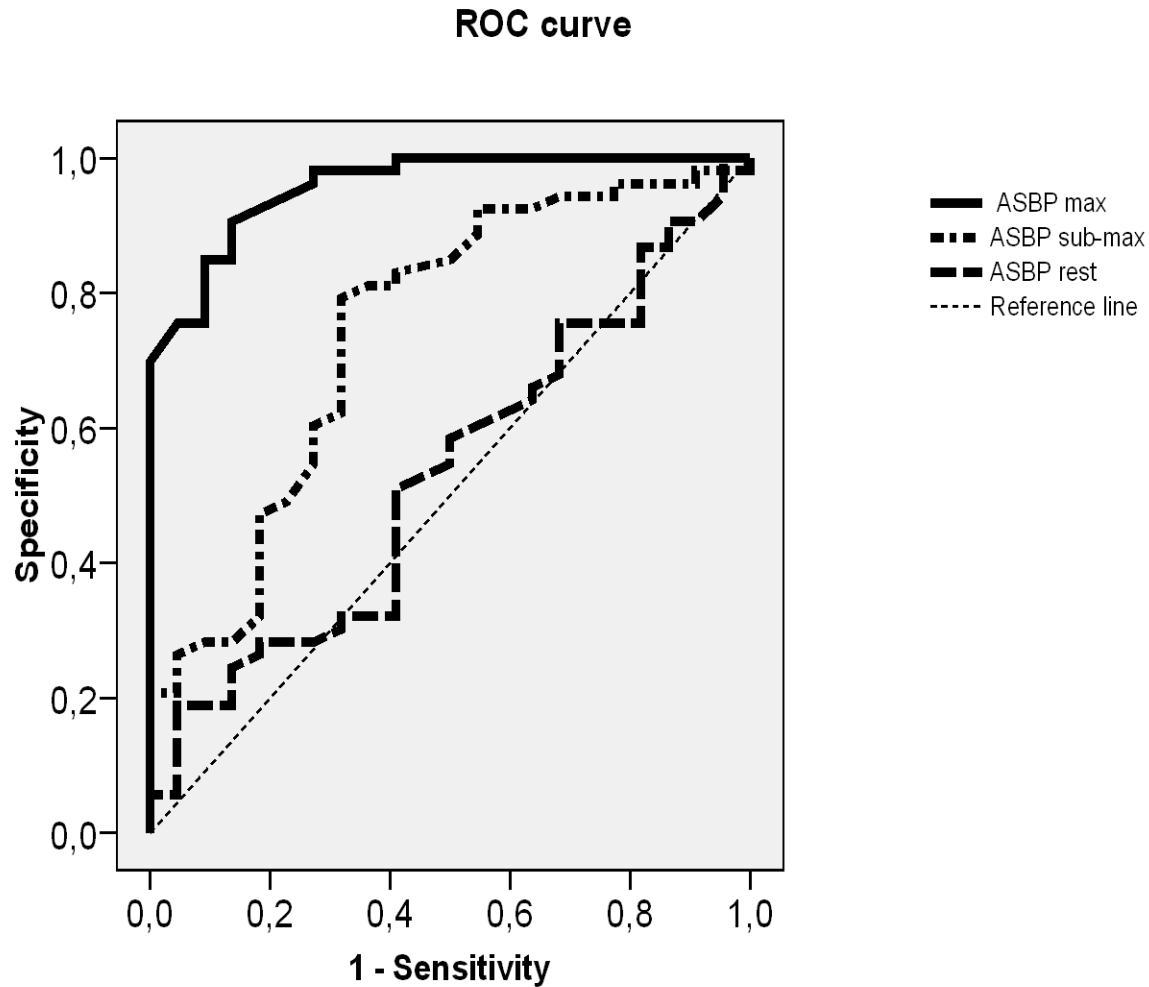
unlimited

4%

11%

~ 1 / 5 discordant ... !

How should exercise tests be done ?



A.B.I.



Yes... but ... !

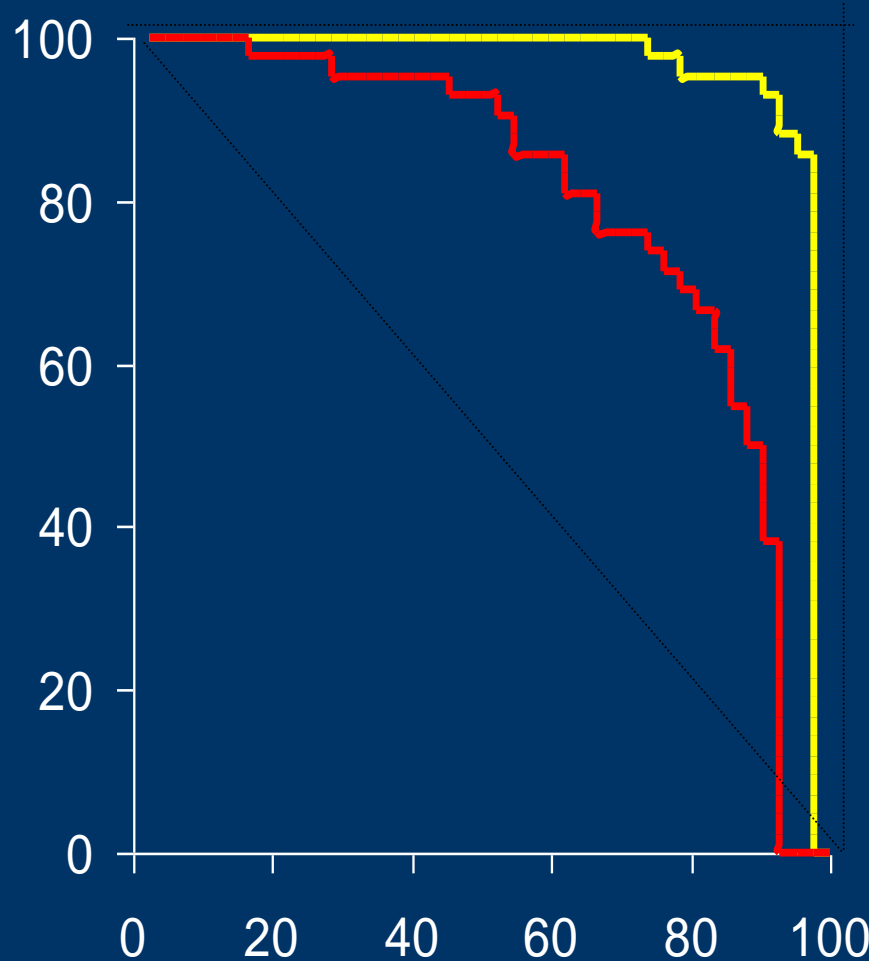
ABI impossible



- **Arterial stiffness**
- **Cardiac arrhythmia**
- **Low values**
- **Lying impossible**
- **Skin lesions**
- **.....**

Automatic / Manual ?

Specificity



42 Endofibrosis
42 Controls

ABI ...

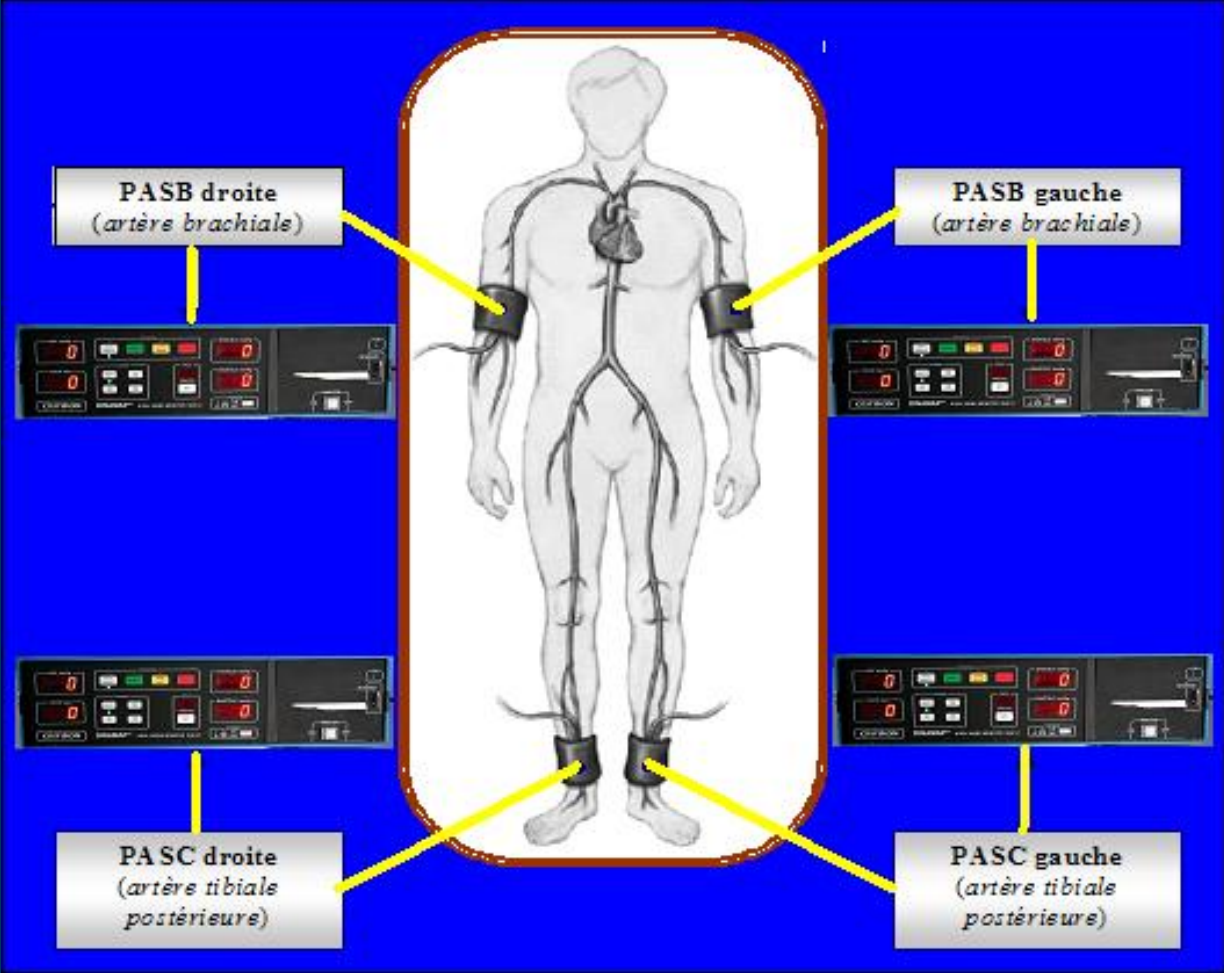


...simultaneous



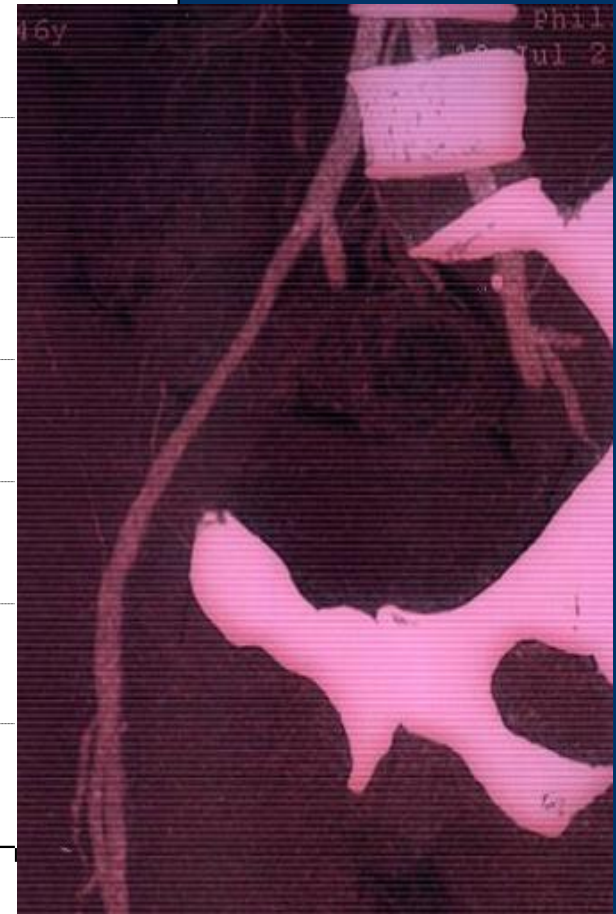
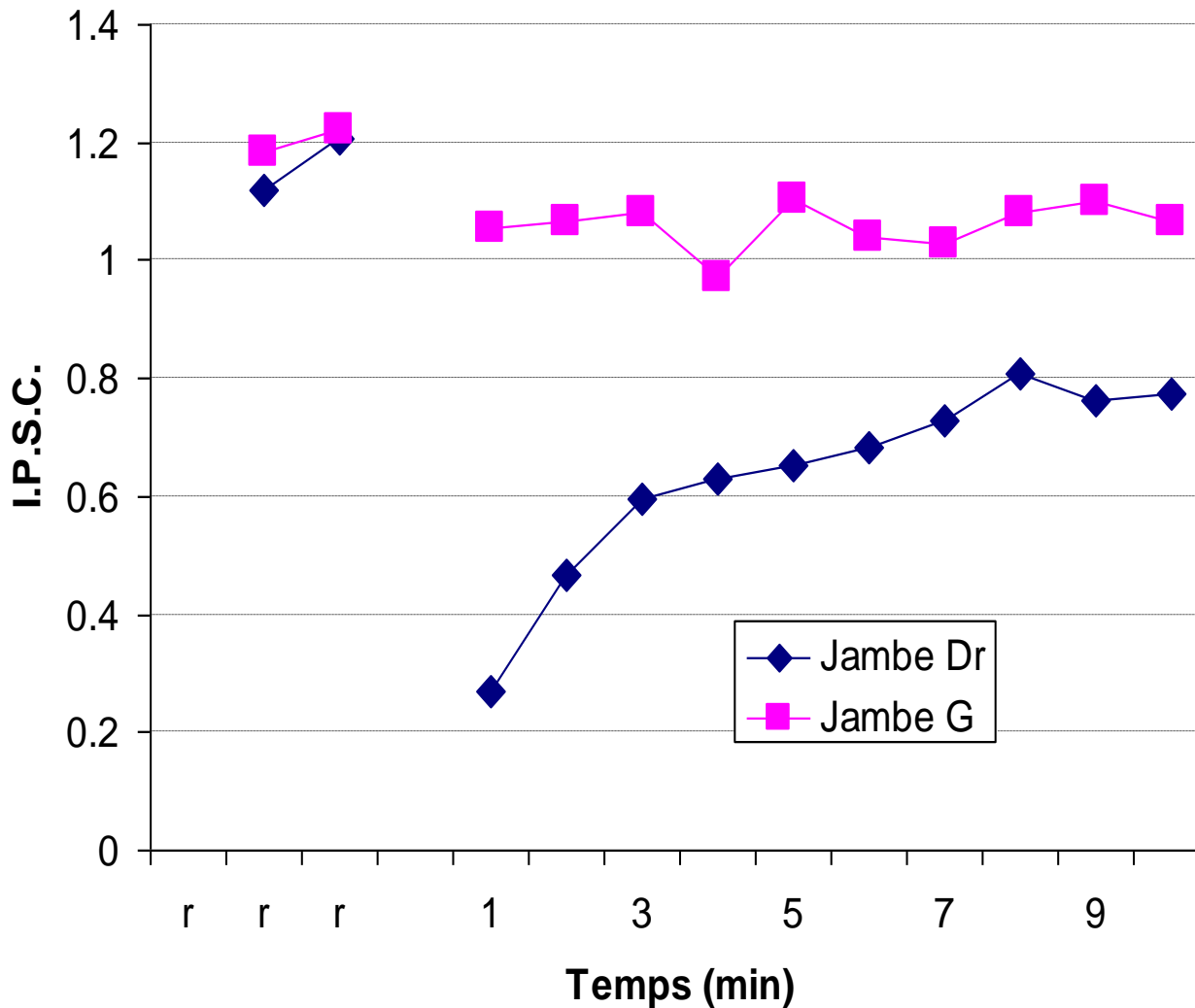
...non simult

Automatic measurements



ASBP
ASBP_{max}

Mr BI ... Thigh pain while running



ABI ...What else?



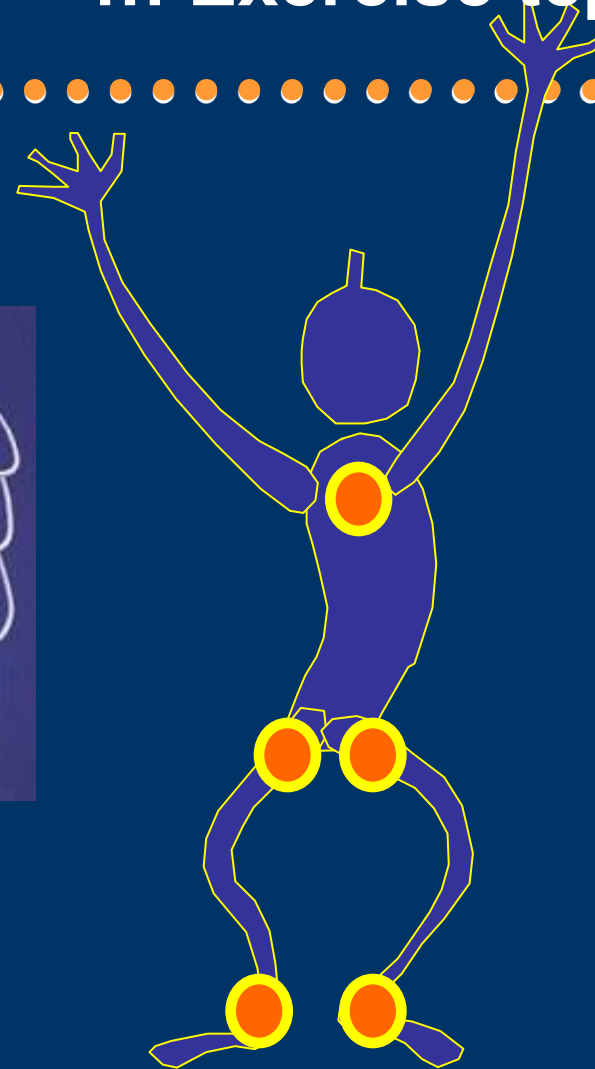
• Tl Scintigraphy



• NIRS



... Exercise tcpO2 ...





Mr J H..., 75yrs, 161cm, 70kg

BP: 160/90 mmHg; Type 1 diabetes, Former smoker

Recent left femoral angioplasty

**Aspirin, Nebivolol, Atorvastatine, lercandipine,
Ibesartan Hydrochlorothiazid**

Limitation for hip pain for 2 years

Estimated MWD : 200m

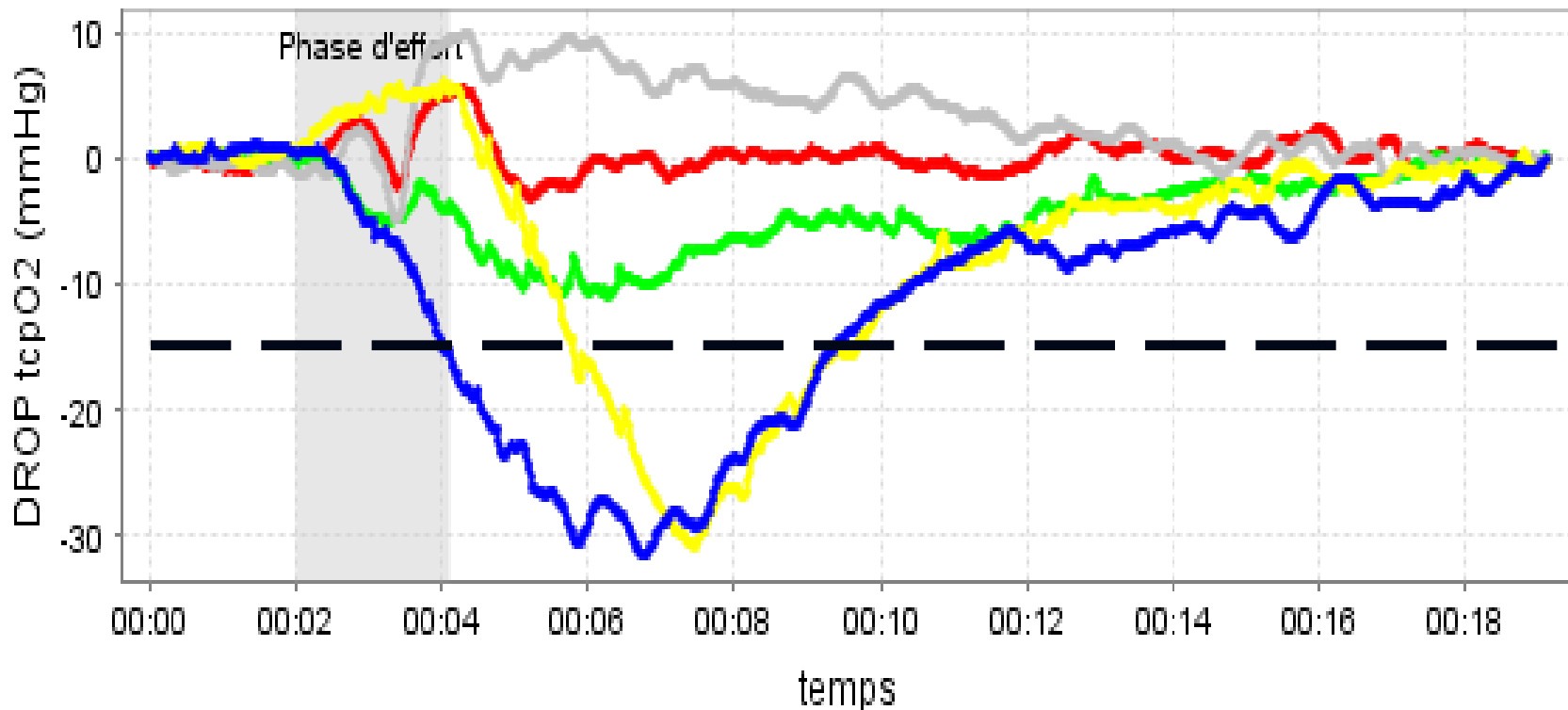
US : Patent angioplasty, distal lesions

ABI : 0.69 / ... (>250 mmHg on left)

Q: not improved after angioplasty

Treadmill MWD : 87 m

Left limb pain



Right calf

Left calf

2nd chest

Right buttock

Left buttock

Mr G. L..., 64 yrs, 175cm, 78kg

BP: 155/80 mmHg; Former smoker (stopped for 25 yrs)

Renal transplantation (right) & Left femoral angioplasty

Clopidogrel, Bisoprolol, Atorvastatin Furosemide,
Allopurinol, Hydroxychloroquine, Lercandipin,
Mycophénolate Mofétil,

Bilateral sciatalgia (presently Left >Right) for 4 years,
Estimated MWD : 300m

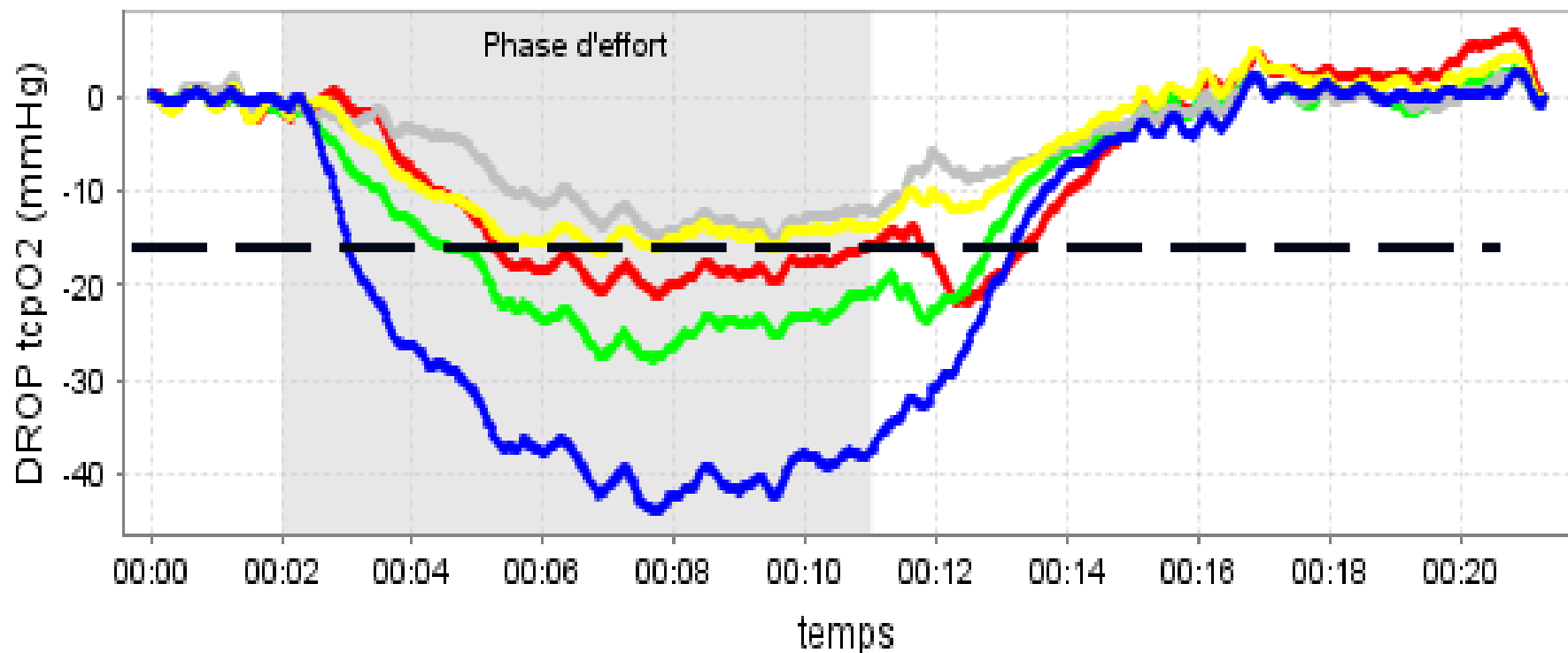
ABI : 0.79 / 0.91

US : Patent bypass, distal right stenoses

Q: PAD or sciatica ?

Treadmill MWD : 470 m..

Bilateral buttock + limb pain.....



Right calf

Left calf

Right Thigh

Right buttock

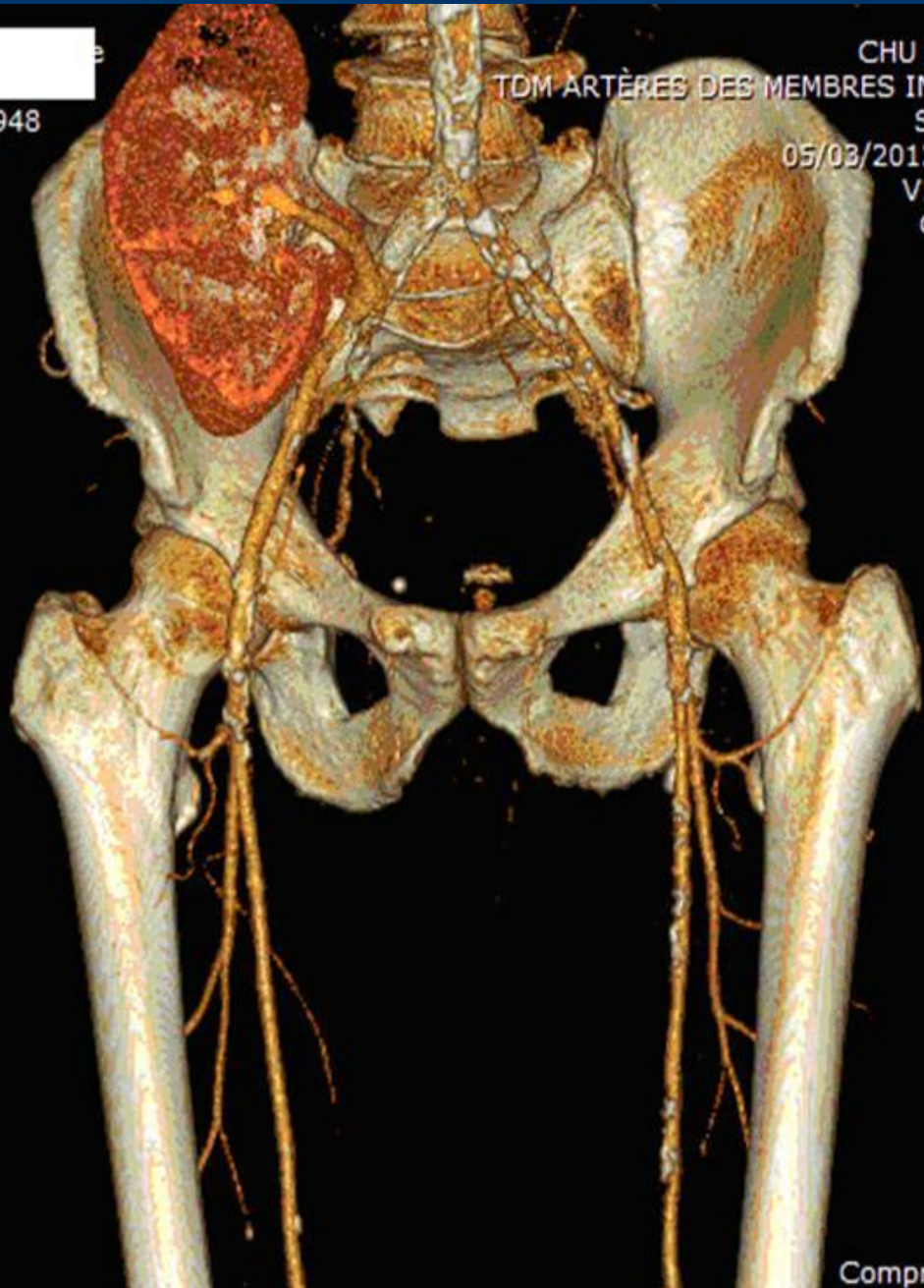
Left buttock

06/03/1948
63 ans
M

CHU ANGERS C
TDM ARTÈRES DES MEMBRES INFÉRIEURS
SELECTION
05/03/2012 16:46:41
V102297972
CONTRAST

FFS

R



Z: 1
C: 128
W: 256
Compression 6:1



TDM ARTÈRES DES MEMBRES INFÉRIEURS
SELECT
05/03/2012 16:41
V102297
CONTR



Who should have an exercise test ?



Symptoms with normal ABI

Atypical symptoms

Doubtful vascular origin

Symptoms out of proportion to the PAD

Pre/post treatment evaluation

Co-morbidity

"That's all Folks!"

