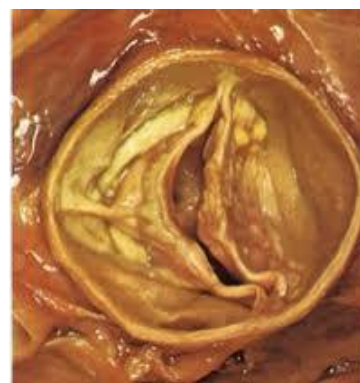




Valvulopathie et sport: quel danger? Le rétrécissement aortique



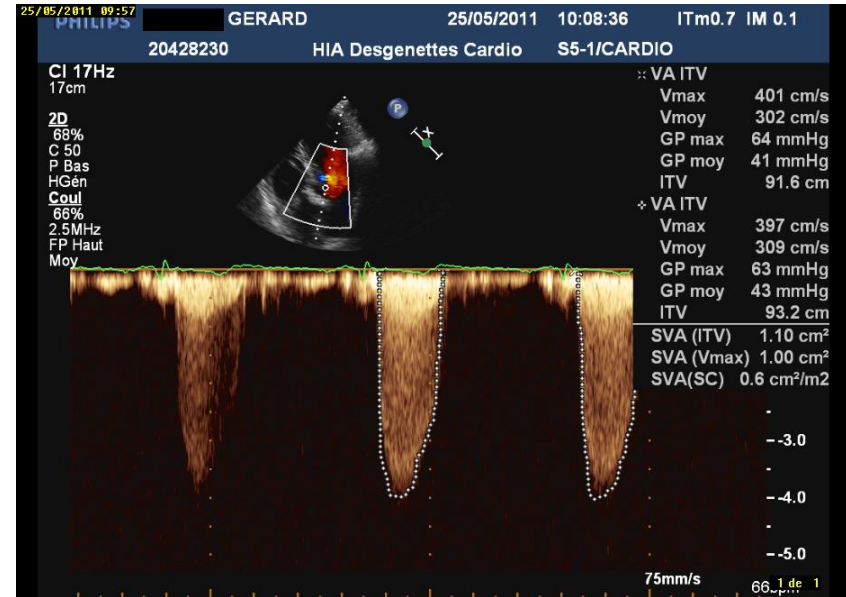
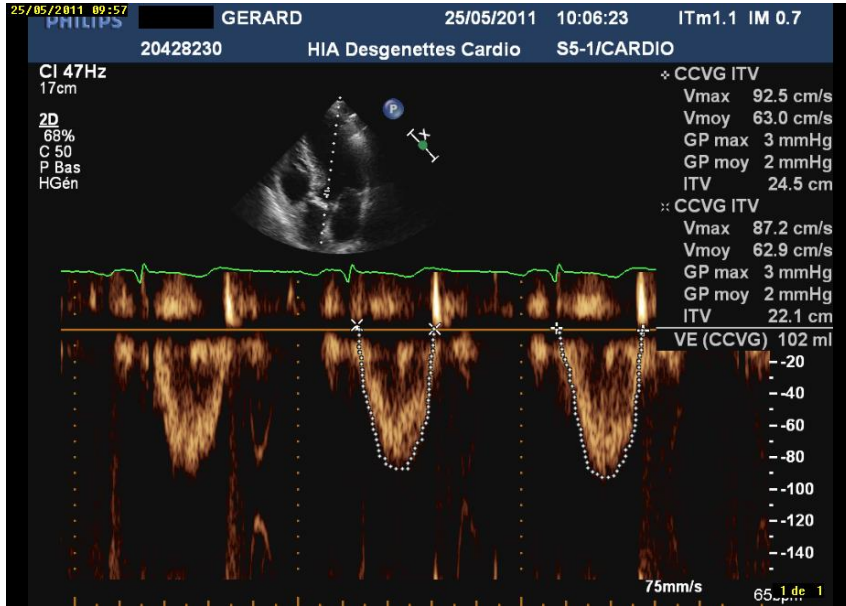
Dr Sylvain GUERARD
Cardio-Bron
LYON

Le rétrécissement aortique du cycloportif

- ✓ Gerard 63 ans
- ✓ cycloportif (15.000 km /an)
 - « La Marmotte » (174 km D+ 5000 m)
 - *Le Glandon, le Télégraphe, le Galibier, le Lautaret et l'Alpe d'Huez*
 - Le Mont Ventoux (22 km, 1622 m, 7,15%)
- ✓ 180 cm 74 Kg
- ✓ Asymptomatique
- ✓ SS aortique 4/6 + B2☒
- ✓ TA 135/85 mm Hg sous lercanidipine 20
- ✓ ECG: sinusal 50 / min + HVG



Echocardiographie



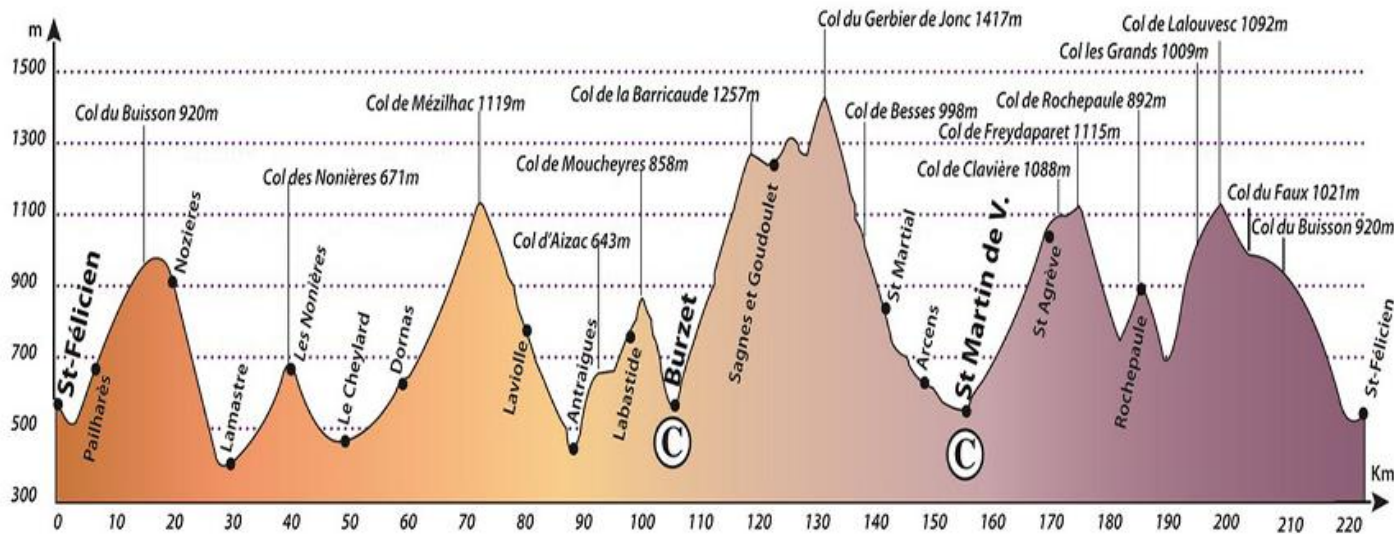
Gradient moyen: 41-43 mm Hg
V max : 4m/s
Surface fonctionnelle: 0,6 cm²/m²
Dtd VG : 54 mm, SIV: 13-14 mm
FEVG : 65%

Gradient moyen > 40 mm Hg
V max >4m/s
Surface < 1cm² ou 0.6cm²/m²
(Critique < 0,8 cm²)
Indice de perméabilité < 0,25

Projet sportif

✓ « L'ARDECHOISE »

- 220 km
- D+ 4270 m
- 10 cols



Projet sportif

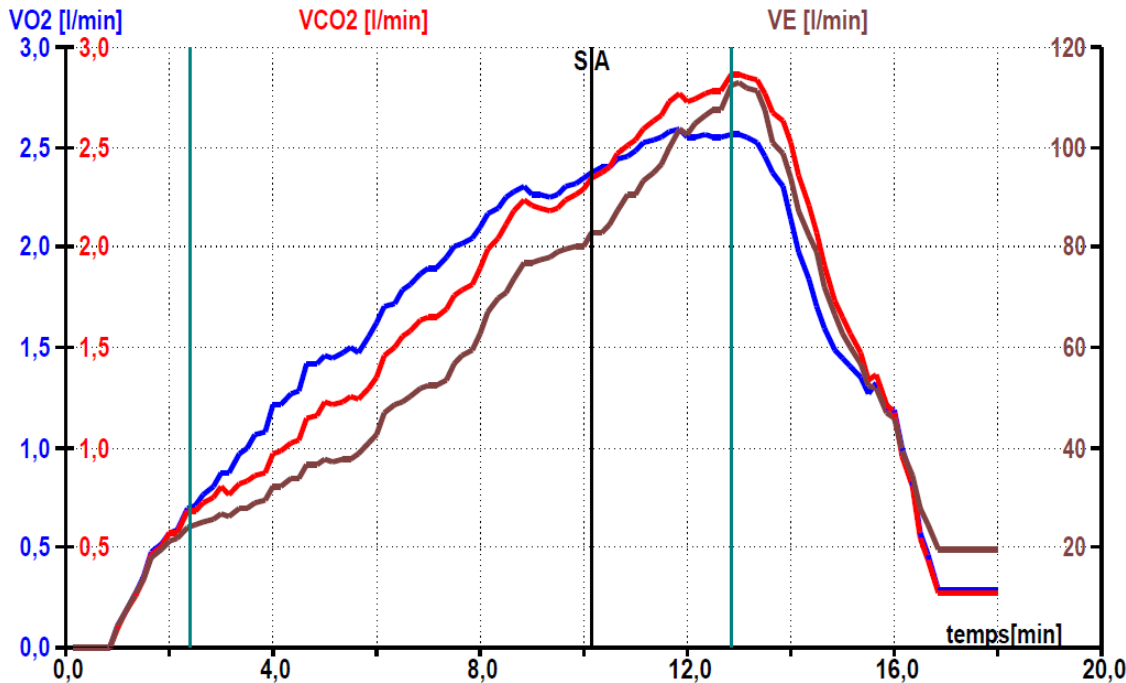
✓ Peut-il participer à cette cyclo sportive?

➤ Oui

➤ Non

➤ Peut-être après des examens complémentaires

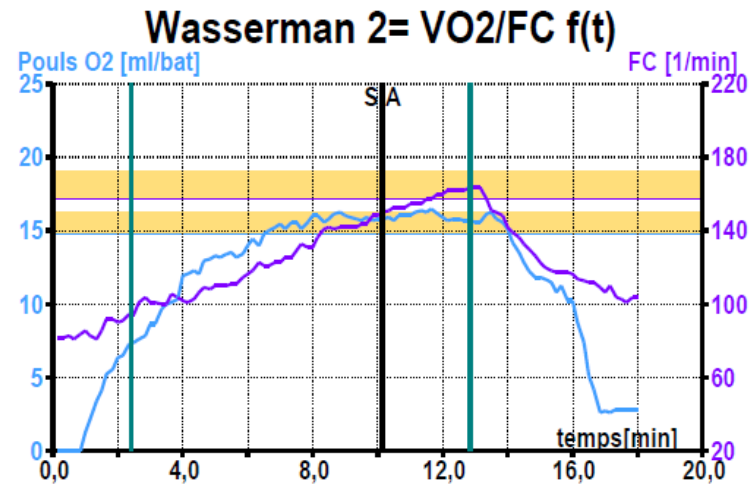
Epreuve d'effort avec échanges gazeux



VO2 max : 35 ml/kg/min, 237 watts (147 %)

Fc max : 164 bpm (104% FMT)

SV1 :142 bpm, 31ml/kg/min (88% VO2 max)



Tension artérielle

Repos : 135/85 mm Hg

200w : 190/95 mm Hg

212w : 190/95 mm Hg

225w : 190/95 mm Hg

237w : 190/95 mm Hg

Projet sportif

✓ Peut-il participer à cette cyclo sportive?

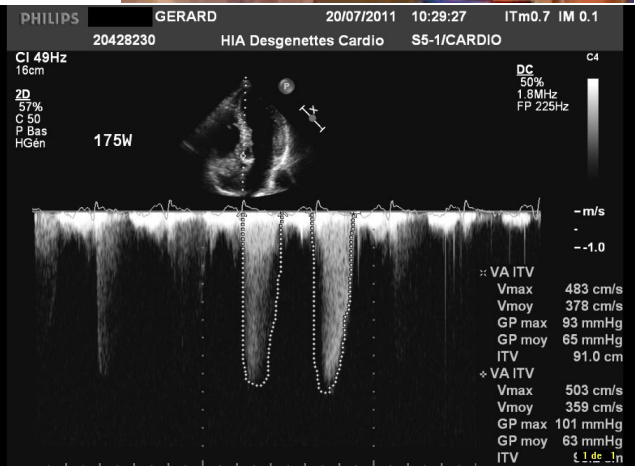
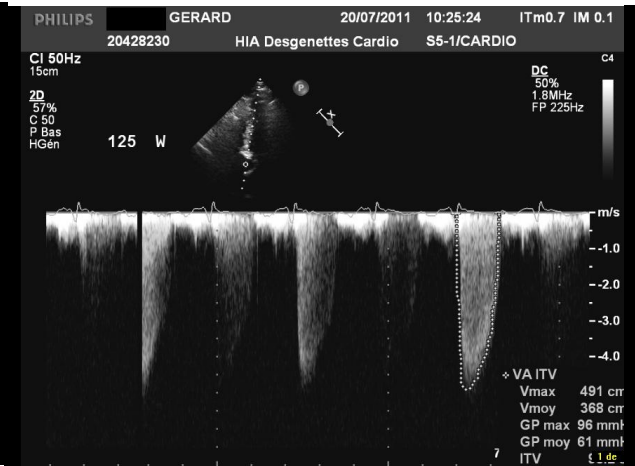
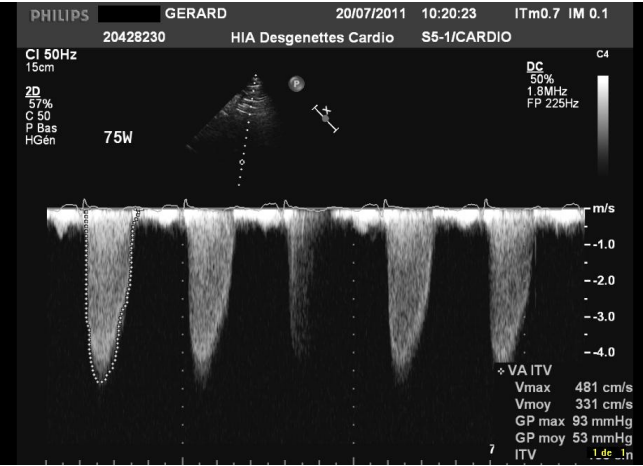
➤ Oui

➤ Non

➤ Peut-être après des examens complémentaires

Echocardiographie d'effort

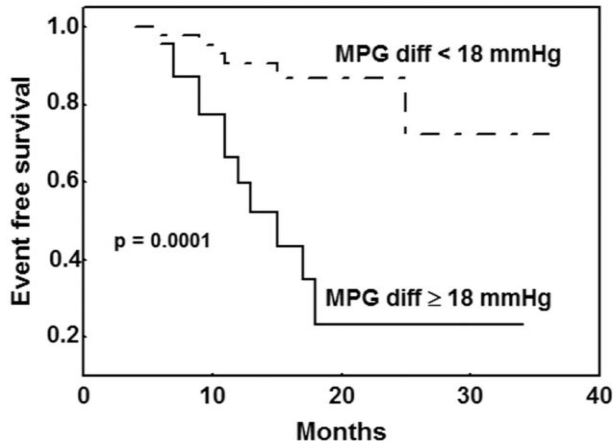
25 w / 2 min, maxi: 215 w



75w : 53 mm Hg

125 w: 61 mm Hg

175 w: 65 mm Hg



+22 mm Hg

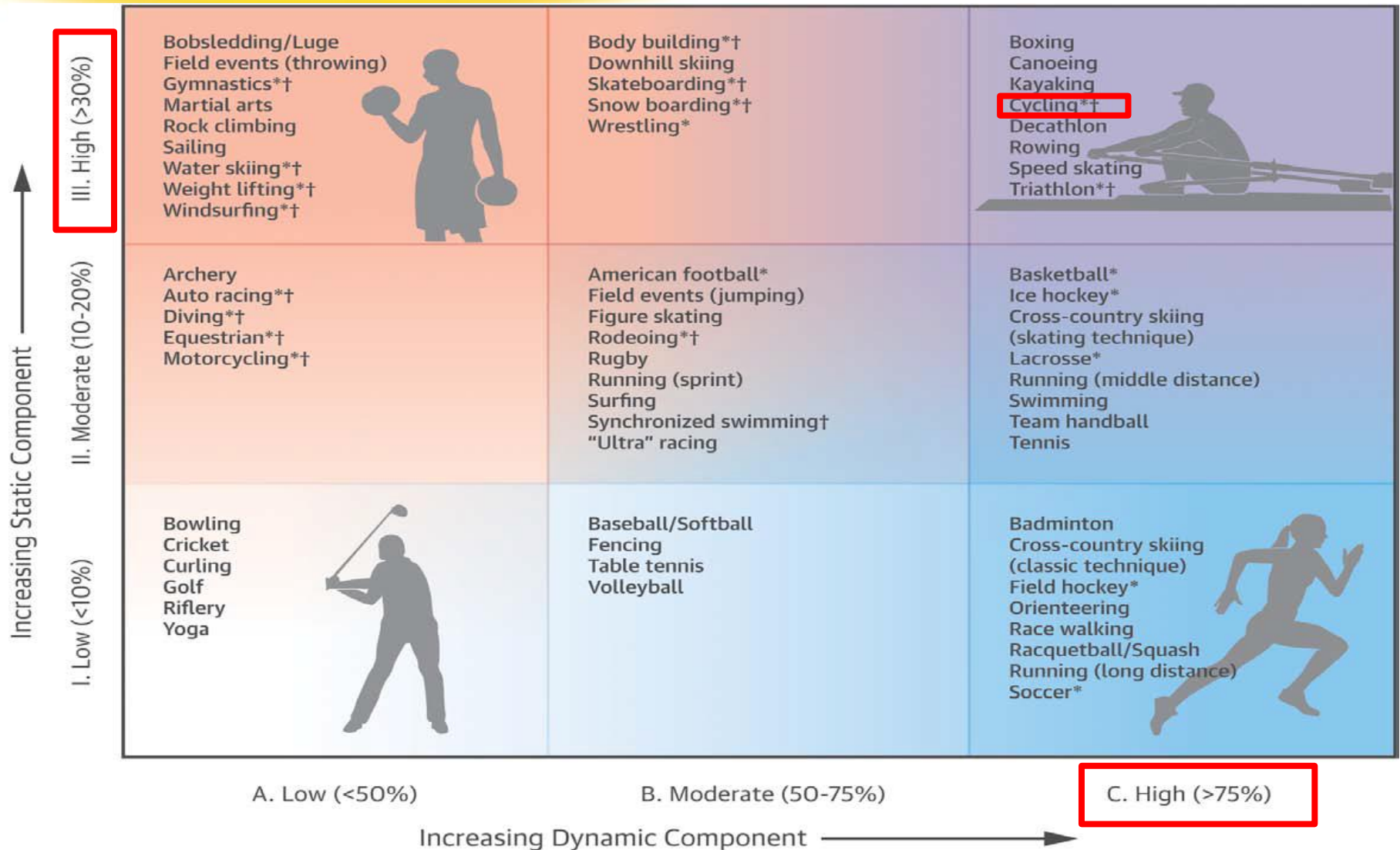
Lancellotti P. EJE 2008

Projet sportif

- ✓ Peut-il participer à cette cyclo sportive?
 - Oui
 - Non
 - Ca dépend de quelle compétition?

De quel sport en compétition parle-t-on?

B.D. Levine
Circulation 2015



Indication de RVA

2017 ESC/EACTS Europ. Heart J. 2017

C) Asymptomatic patients with severe aortic stenosis (refers only to patients eligible for surgical valve replacement)

SAVR is indicated in asymptomatic patients with severe aortic stenosis and systolic LV dysfunction (LVEF <50%) not due to another cause.

I

C

SAVR is indicated in asymptomatic patients with severe aortic stenosis and an abnormal exercise test showing symptoms on exercise clearly related to aortic stenosis.

I

C

SAVR should be considered in asymptomatic patients with severe aortic stenosis and an abnormal exercise test showing a decrease in blood pressure below baseline.

IIa

C

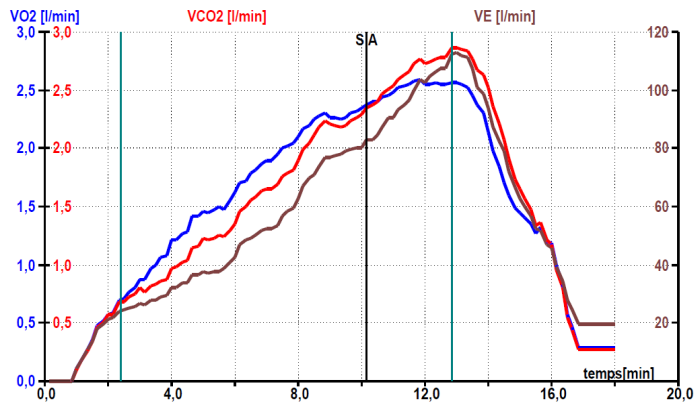
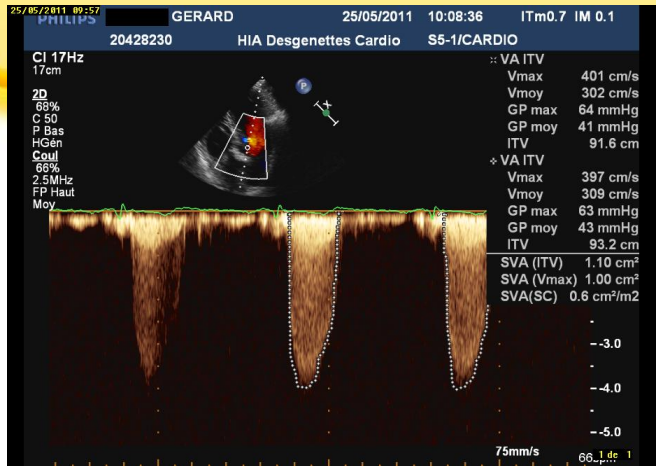
SAVR should be considered in asymptomatic patients with normal ejection fraction and none of the above-mentioned exercise test abnormalities if the surgical risk is low and one of the following findings is present:

- Very severe aortic stenosis defined by a $V_{max} > 5.5$ m/s
- Severe valve calcification and a rate of V_{max} progression ≥ 0.3 m/s/year
- Markedly elevated BNP levels (>threefold age- and sex-corrected normal range) confirmed by repeated measurements without other explanations
- Severe pulmonary hypertension (systolic pulmonary artery pressure at rest > 60 mmHg confirmed by invasive measurement) without other explanation.

IIa

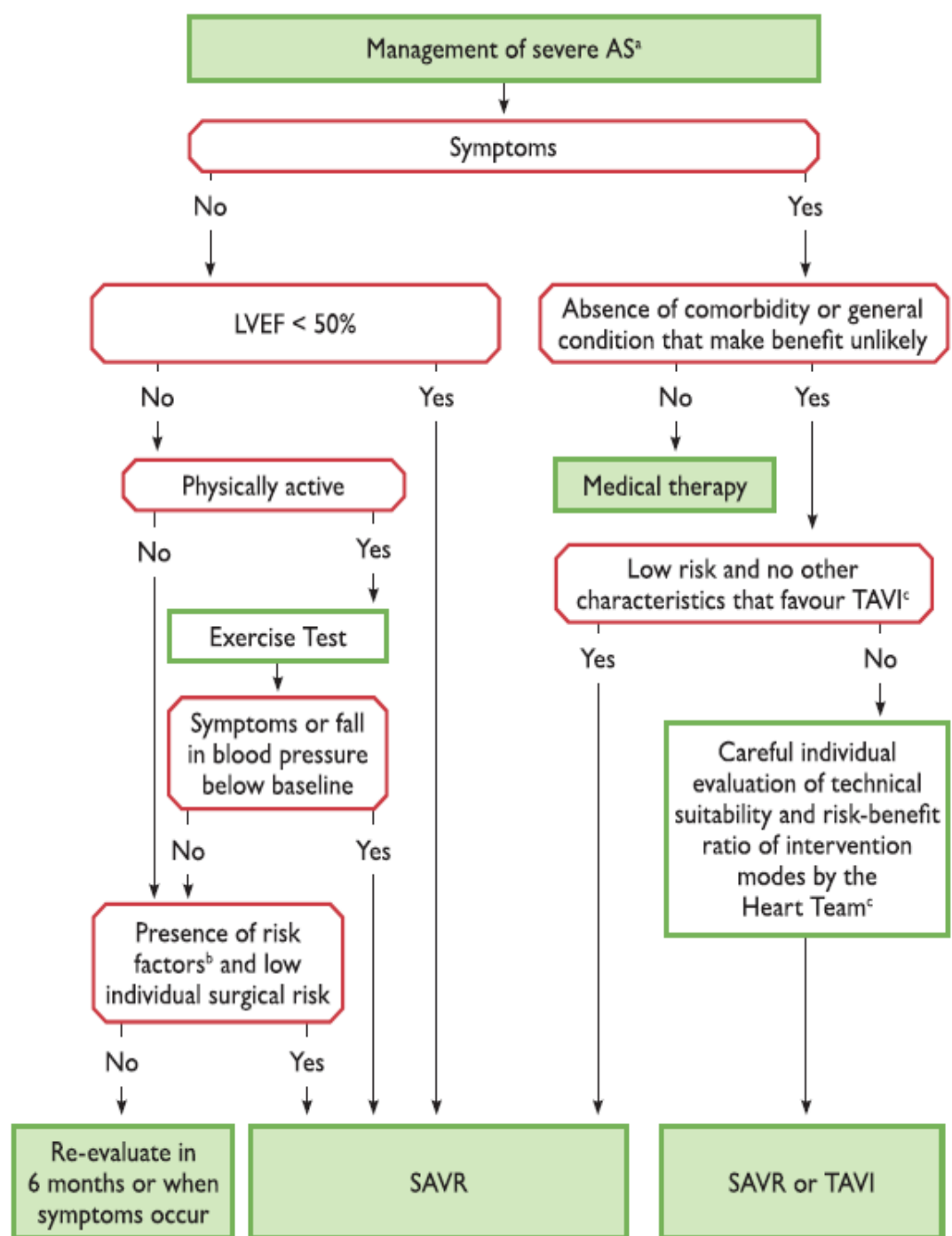
C

Gérard, cyclosporitif



Tension artérielle

Repos : 135/85 mm Hg
200w : 190/95 mm Hg
212w : 190/95 mm Hg
225w : 190/95 mm Hg
237w : 190/95 mm Hg



Recommendations AHA/ACC 2015

Circulation 2015

1. Athletes with AS should be **evaluated yearly** to determine whether sports participation can continue

(Class I; Level of Evidence C)

2. Athletes with mild AS (stage B) and a normal maximal exercise response can participate in **all sports**

(Class IIa; Level of Evidence C)

3. Athletes with moderate AS (stage B) can participate in low and moderate static or low and moderate dynamic competitive sports (classes IA, IB, and IIA) if exercise **tolerance testing** to at least the level of activity achieved in competition and the training regimen demonstrates **satisfactory exercise capacity** without symptoms, ST-segment depression, or ventricular tachyarrhythmias, and with a normal blood pressure response

(Class IIa; Level of Evidence C)

Recommendations AHA/ACC 2015

Circulation 2015

4. Asymptomatic athletes with severe AS (stage C) should not participate in competitive sports, with the possible exception of low-intensity (class IA) sports

(Class III; Level of Evidence C)

5. Symptomatic patients with AS (stage D) should not participate in competitive sports

(Class III; Level of Evidence C)

Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/ is indicated.
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	Weight of evidence/opinion is in favour of usefulness/efficacy.	Should be considered.
Class IIb	Usefulness/efficacy is less well established by evidence/opinion.	May be considered.
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended.

Level of evidence C:

Consensus of opinion of the expert/ small studies, retrospective studies or registries

Recommandations AHA/ACC 2015

Circulation 2015

Sténose aortique	surf. cm²	Gradient moyen mm Hg	V max m/s	Sport en compétition
faible	> 1,5	< 20	< 3	tous
modérée	1,5 à 1	21 à 40	3-4	class IA, IB, IIA, Bowling, curling, cricket, golf, yoga, riflery Fencing, volleyball, baseball, table tennis Diving, equestrian, auto racing, motocycling, archery
sévère	< 1	> 40	>4	Aucun sport en compétition (+/- IA)

Projet sportif

- ✓ Peut-il participer à cette cyclo sportive?
 - Oui
 - Non
 - Oui mais à condition....

Conclusions

- ✓ Le RA est une cause de mort subite à l'effort mais responsable de **moins de 4% des morts subites** chez les jeunes athlètes.
- ✓ La sévérité du RA est au mieux évaluée par l'histoire clinique, l'examen physique et l'échocardiographie.
- ✓ Les athlètes avec un RA peu ou modérément serré doivent être **évalués tous les ans** car la sténose peu évoluer progressivement.
- ✓ L'épreuve d'effort avec électrocardiogramme et surveillance de la pression artérielle est utile pour l'évaluation des athlètes porteur d'un RA.
- ✓ **Un test d'effort doit être pratiqué** chez les athlètes avec un RA peu et modérément serré pour s'assurer que leur **tolérance à l'effort** est compatible avec l'activité sportive et qu'ils ne présentent pas d'hypotension à l'effort ou d'ischémie d'effort.