

# Atrial fibrillation ablation how does it work and does it last?

Richard Schilling



Barts Heart Centre

Barts Health **NHS**  
NHS Trust

# Simple classification of AF

## **Paroxysmal AF:**

recurrent AF ( $\geq 2$  episodes), terminates spontaneously within 7 days

## **Persistent AF:**

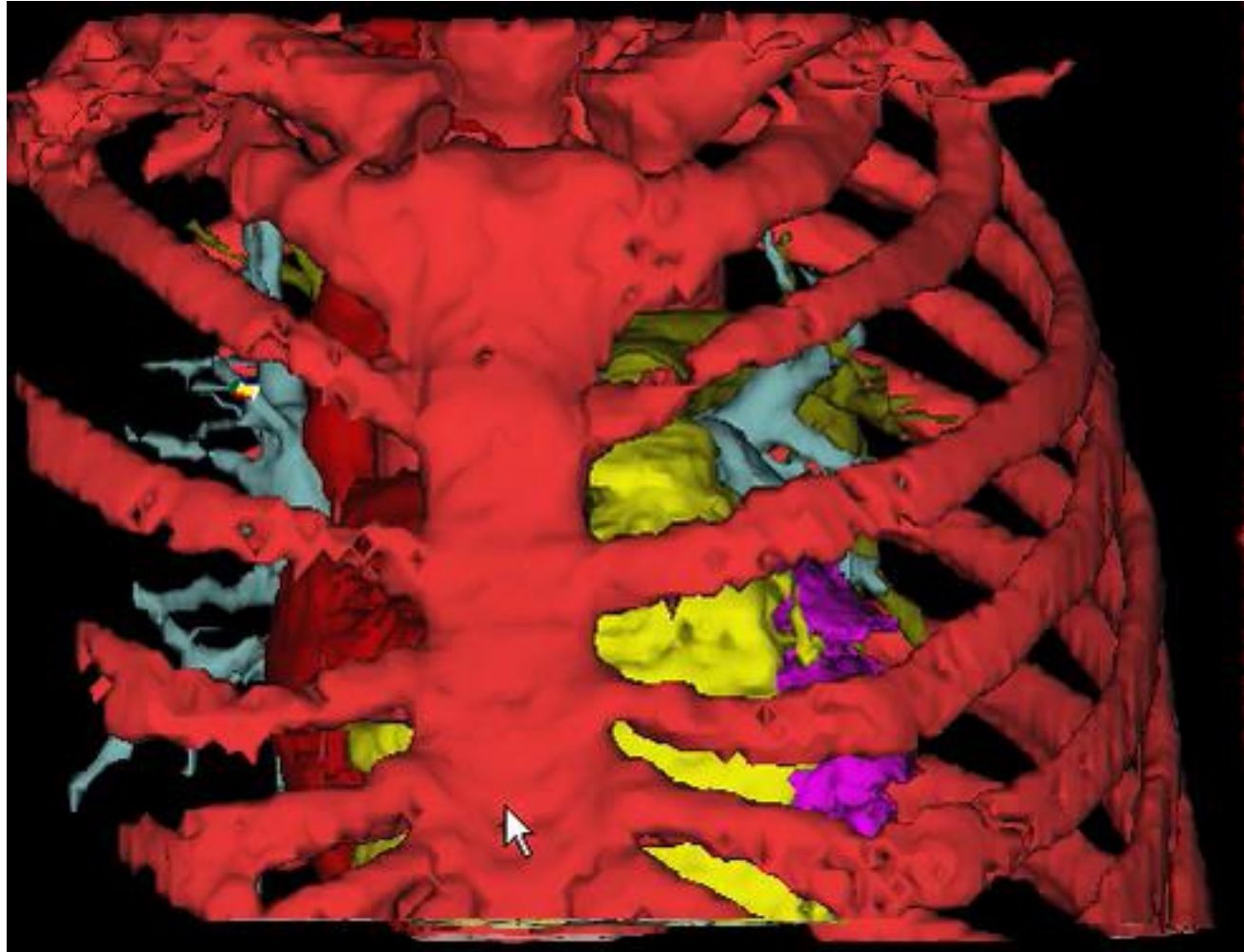
AF sustains  $>7$  days, **or needs pharmacologic** or electrical cardioversion

## **Permanent AF:**

AF accepted

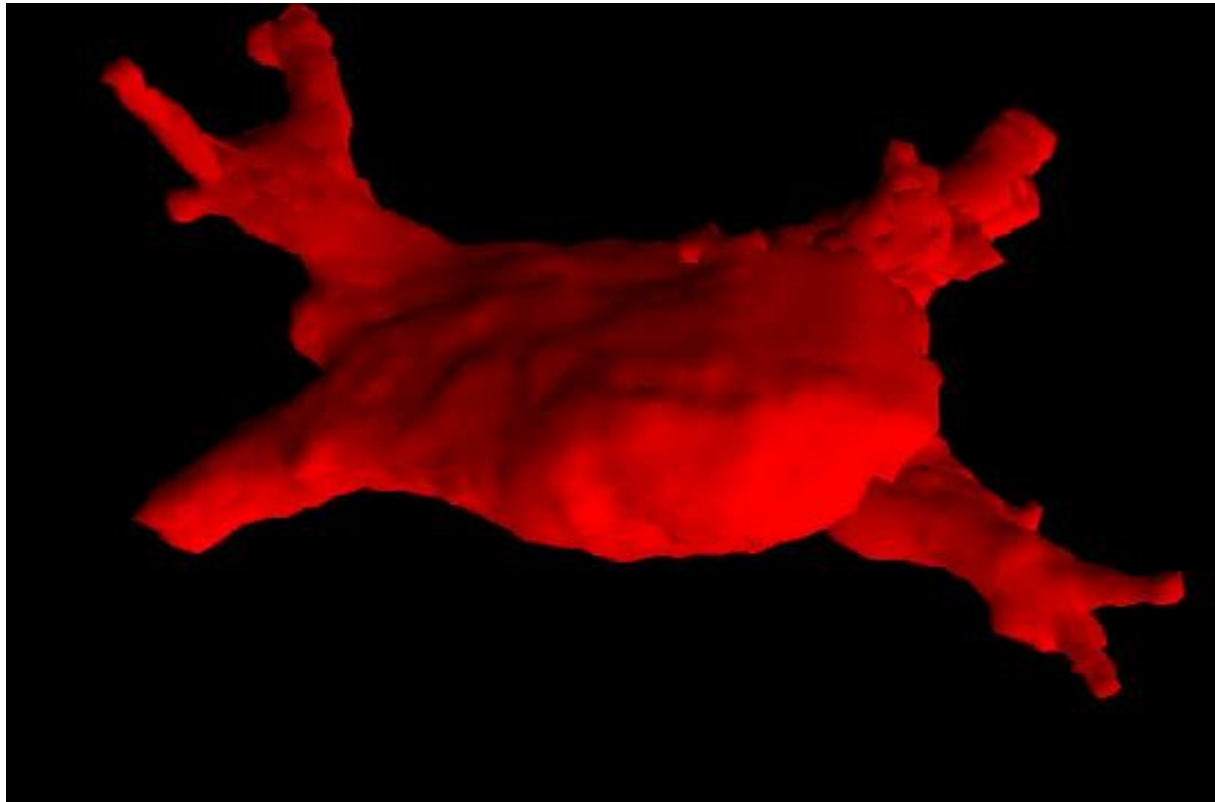


# The anatomy of the heart

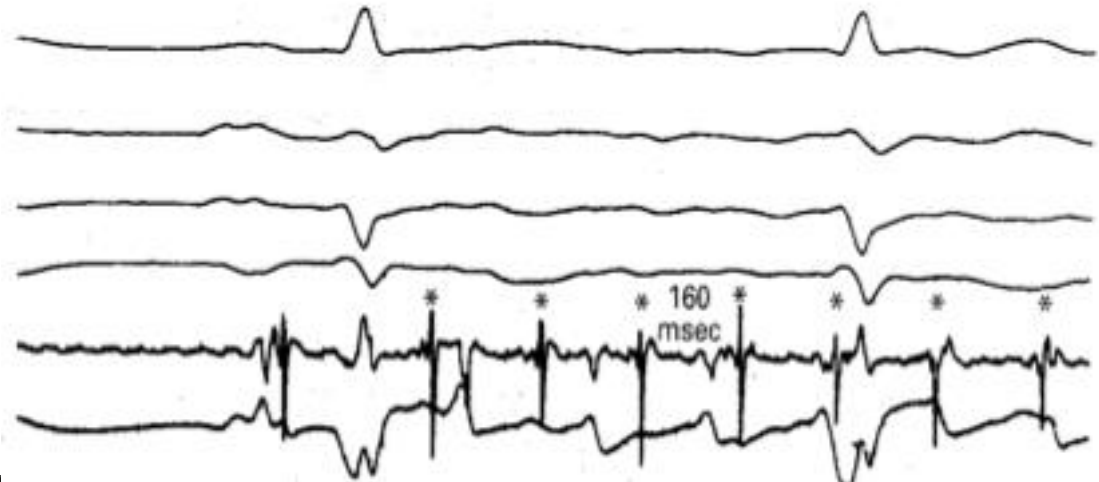
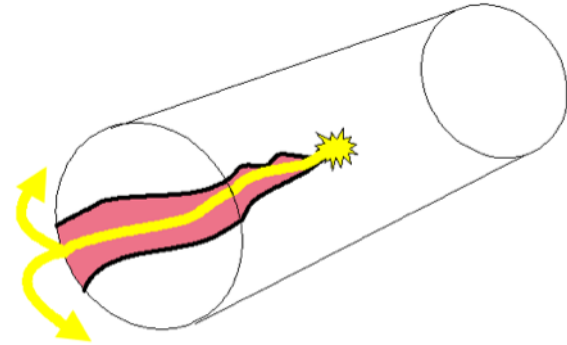
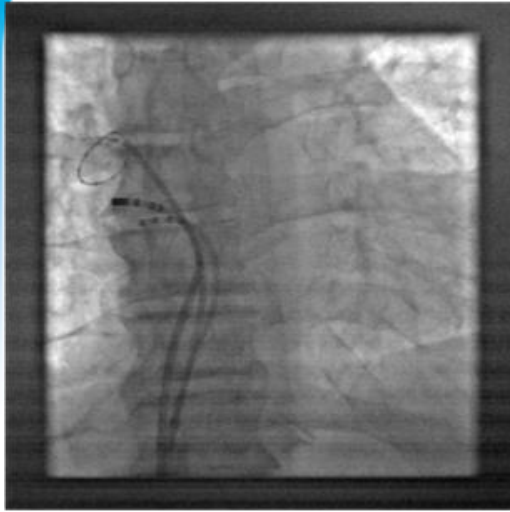


# AF mechanism

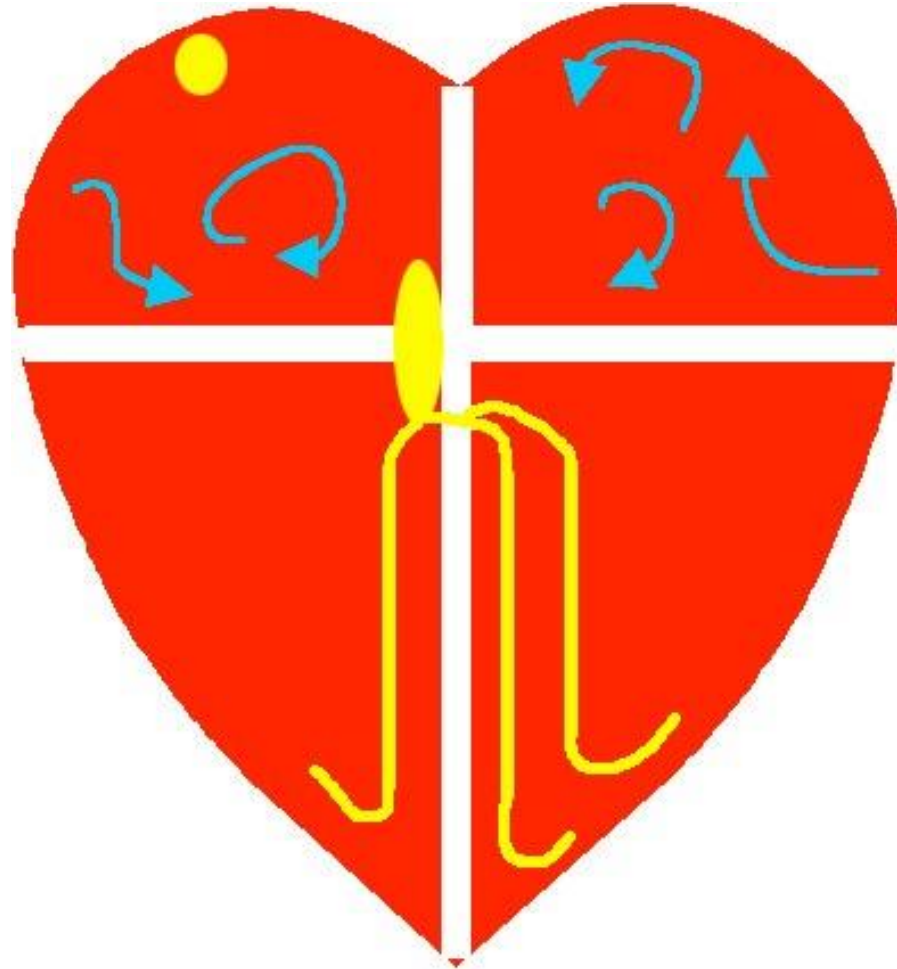
- AF usually from Left Atrium



# PAF usually arises from PVs



# What is AF?

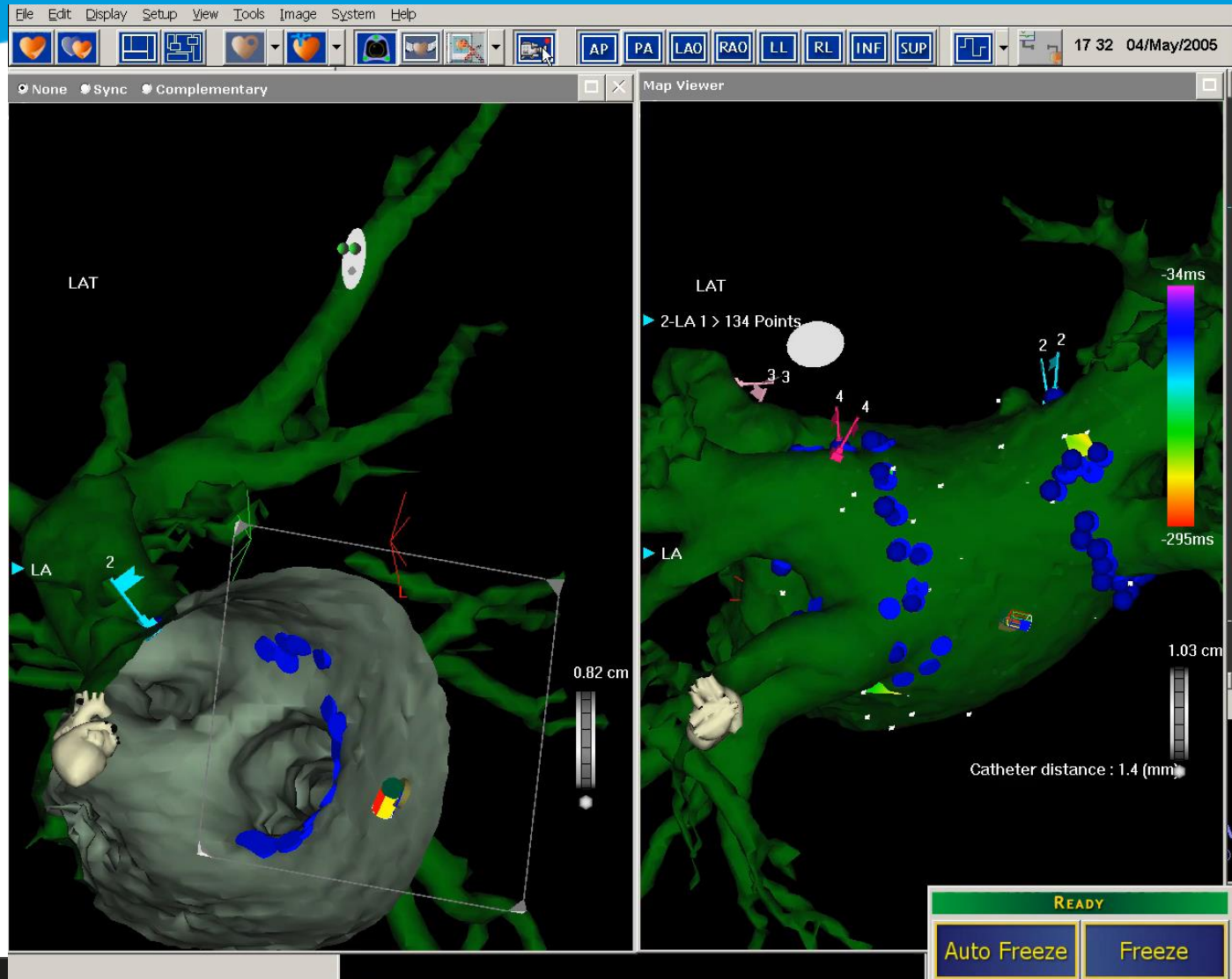


# Why does this happen?

- Large Mammals
- Age
- Genetic
- High blood pressure
- Alcohol
- Mostly random
- Individual factors
  - exercise
  - rest



# PAF catheter ablation

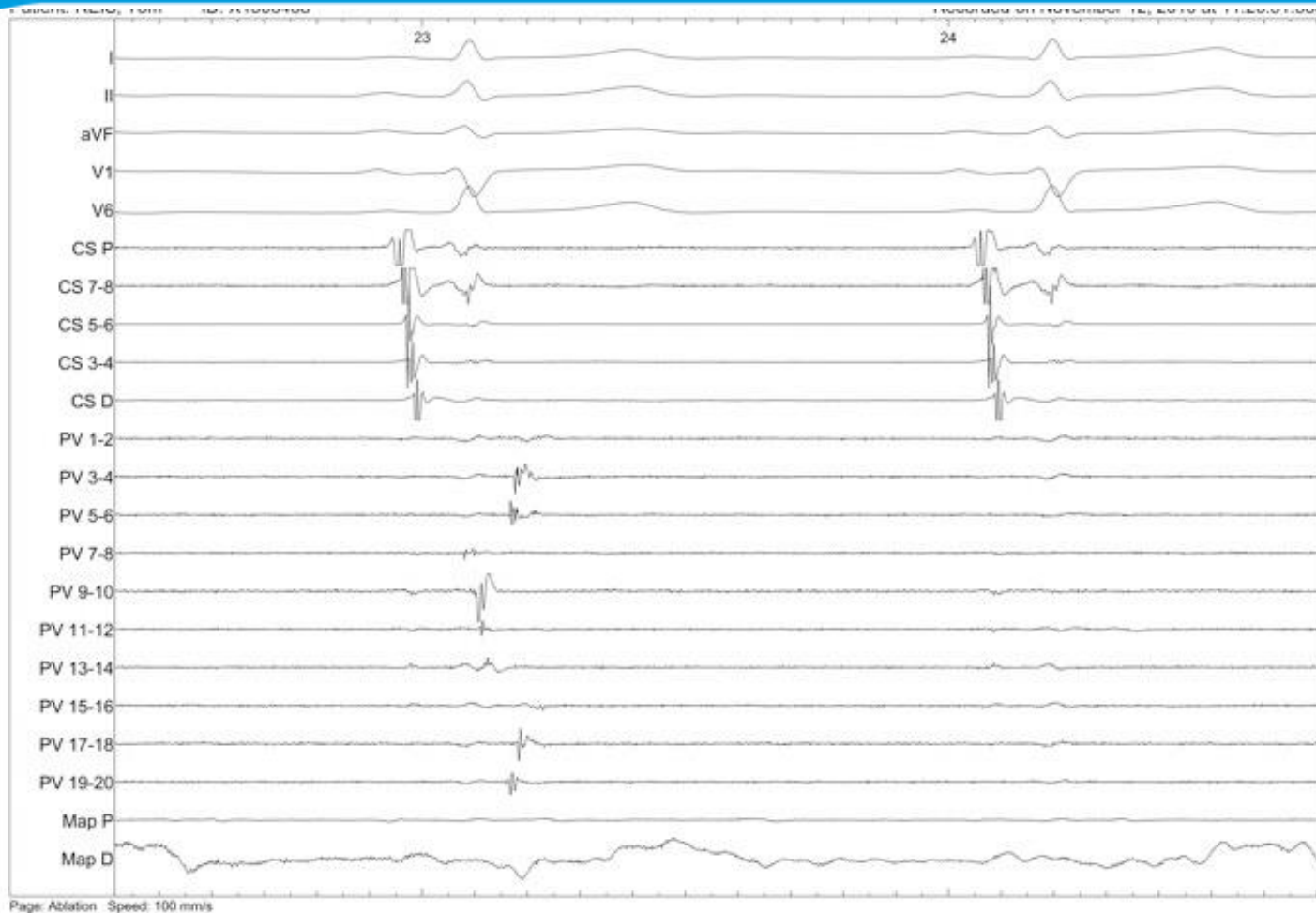


tion

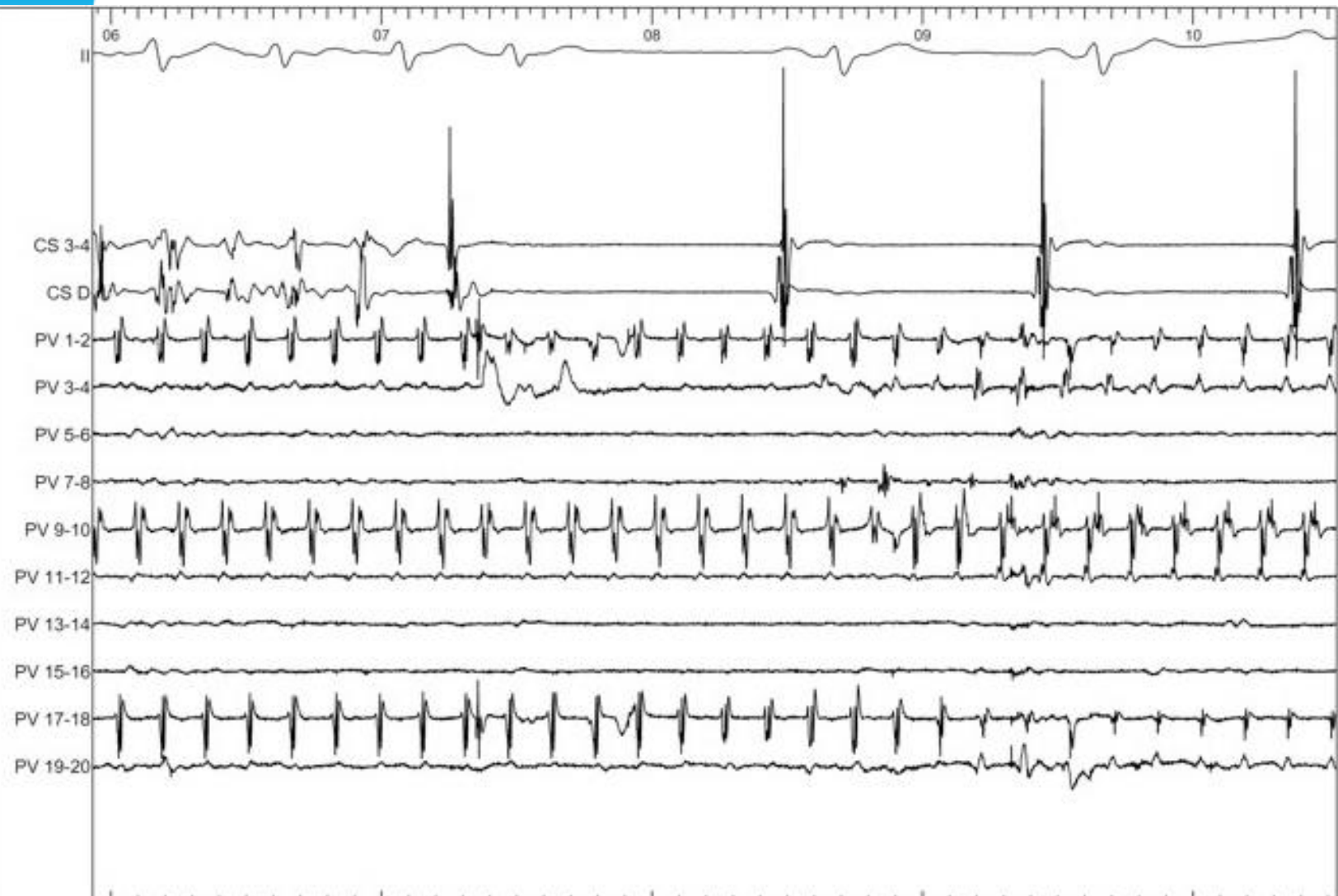




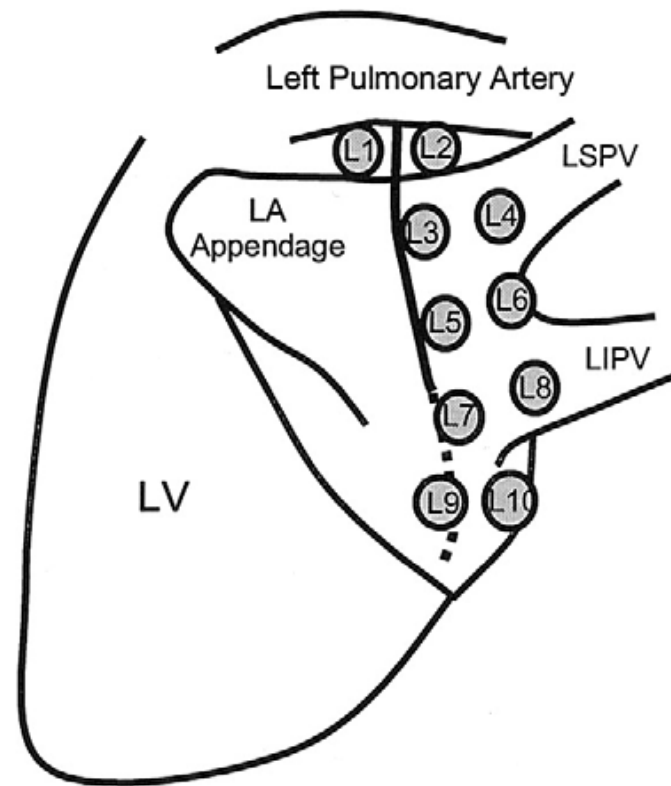
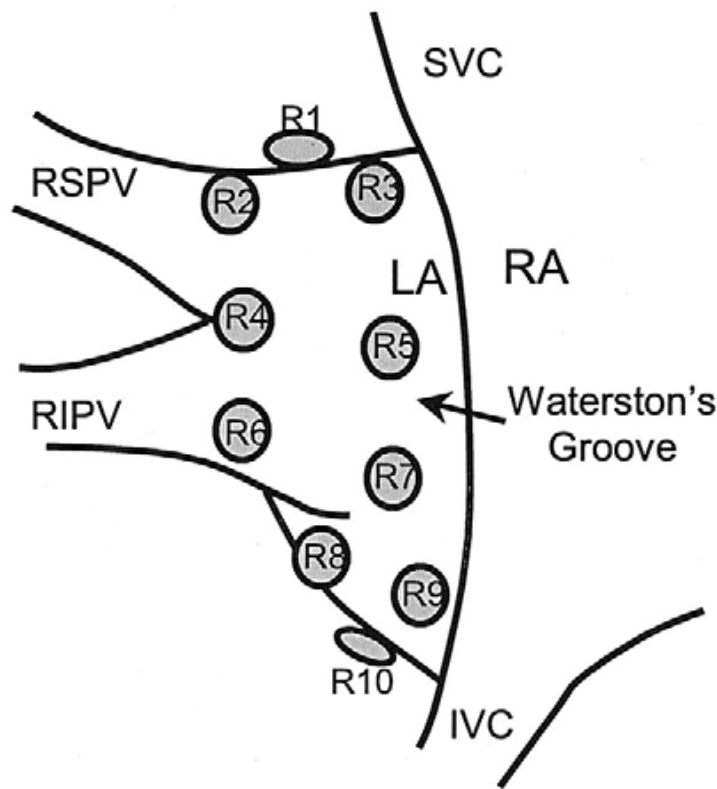
# PAF ablation



# PAF ablation

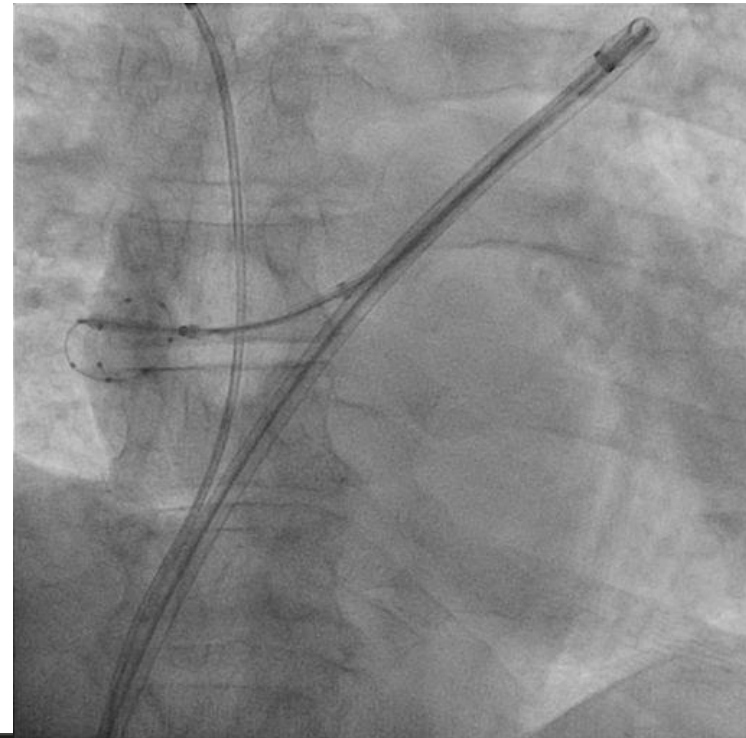


# Location of ganglionic innervation



# Does it work

- yes and procedures are getting faster and safer



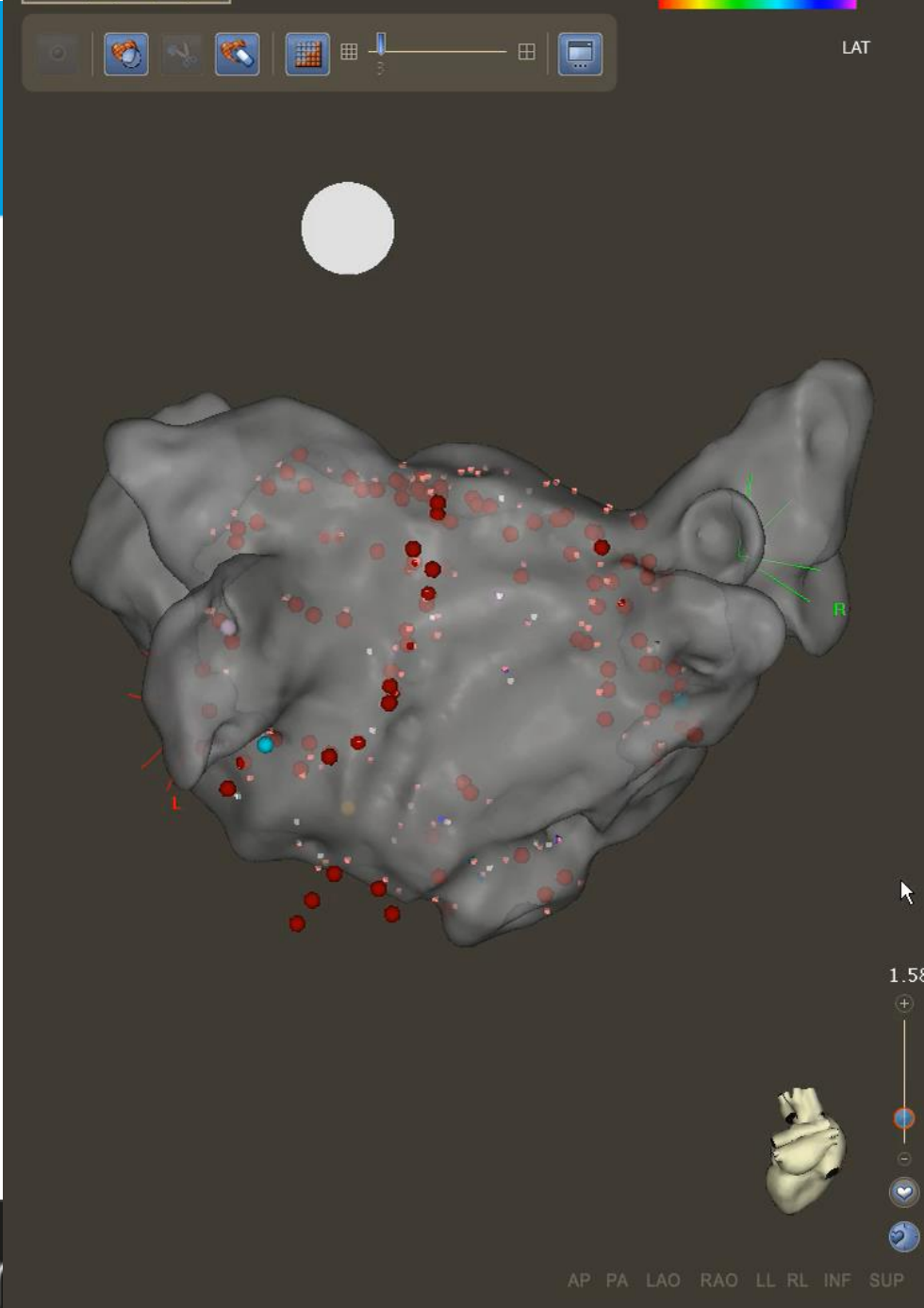
# Persistent AF

- Atrial remodeling makes non-PV tissue “fibrillatory”  
PAF → Persistent → Permanent  
Genetic and environmental factors influence the rate

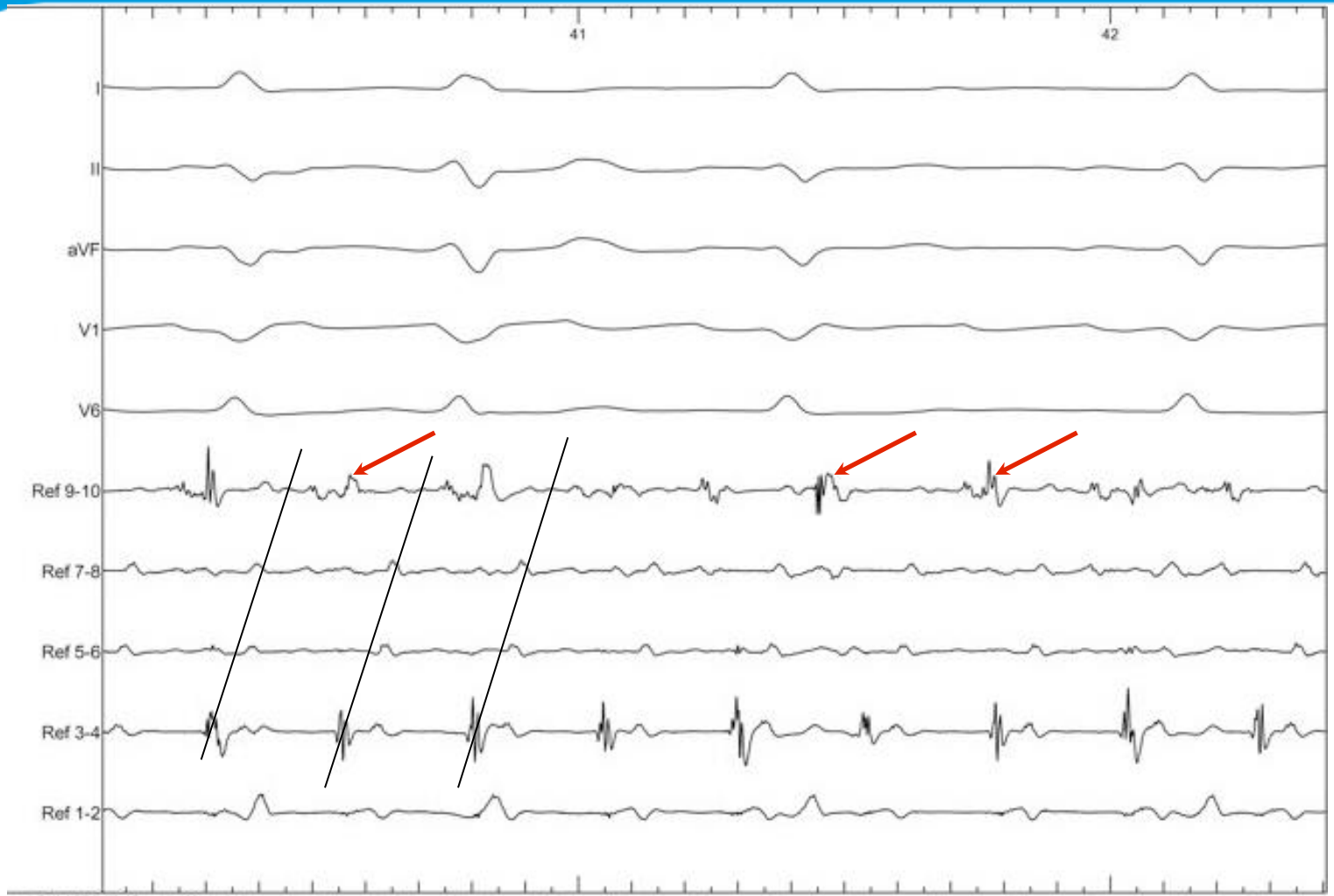


# Persistent

- More extensive treatment needed
- Challenging to know where to go - “random” activity



# Patterns within the noise



# What predicts success

- PAF
- Persistent AF:
  - Short time in persistent AF 6 months, 1 year, 3 years, 5 years
  - LA size (correlates with time in AF)
  - Other disease: MV disease, HOCCM

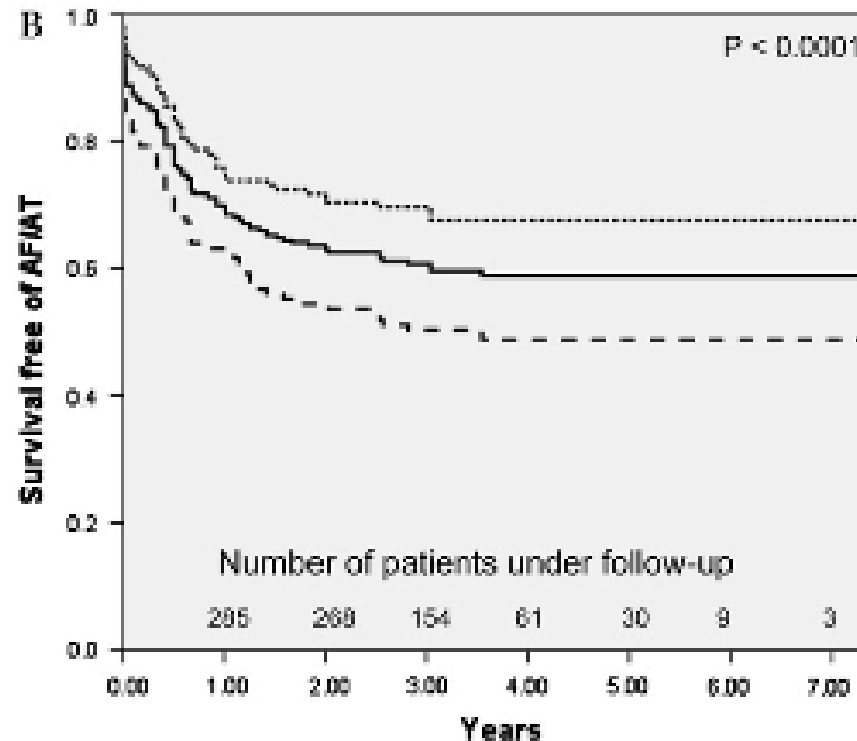




# Future strengths

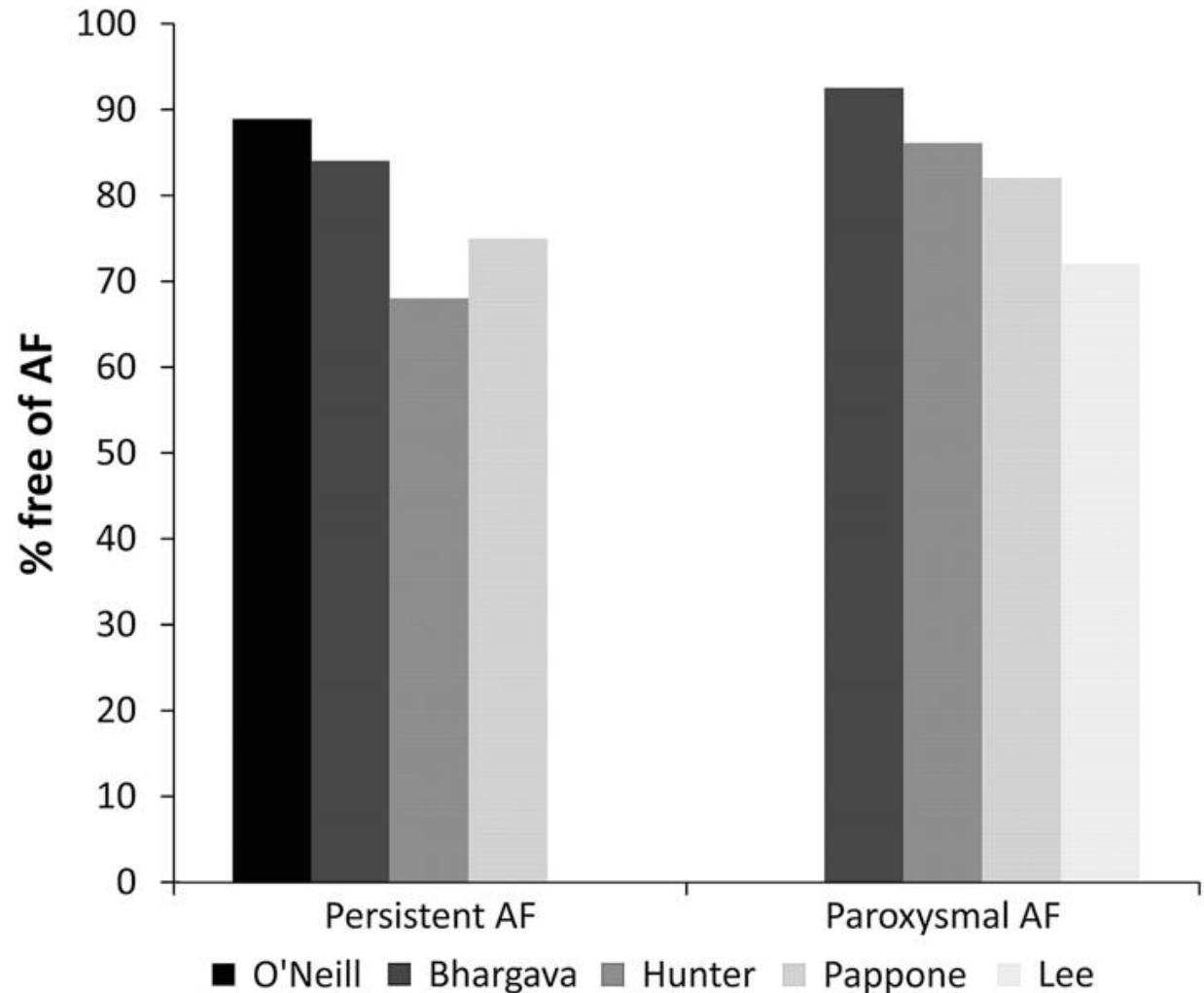
## Increasing evidence of cure

- Long term outcome of AF ablation

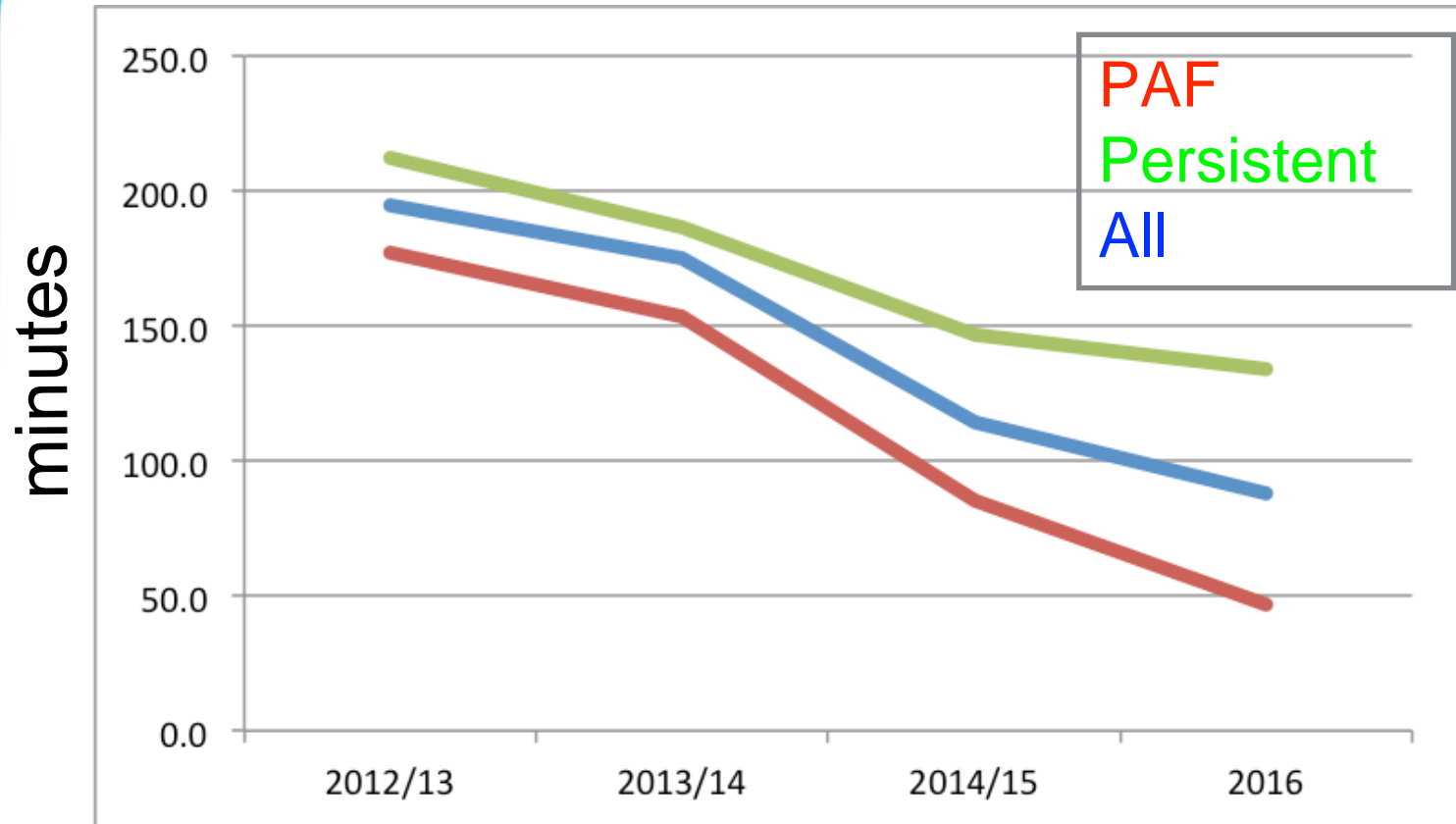


# Long term success for AF ablation

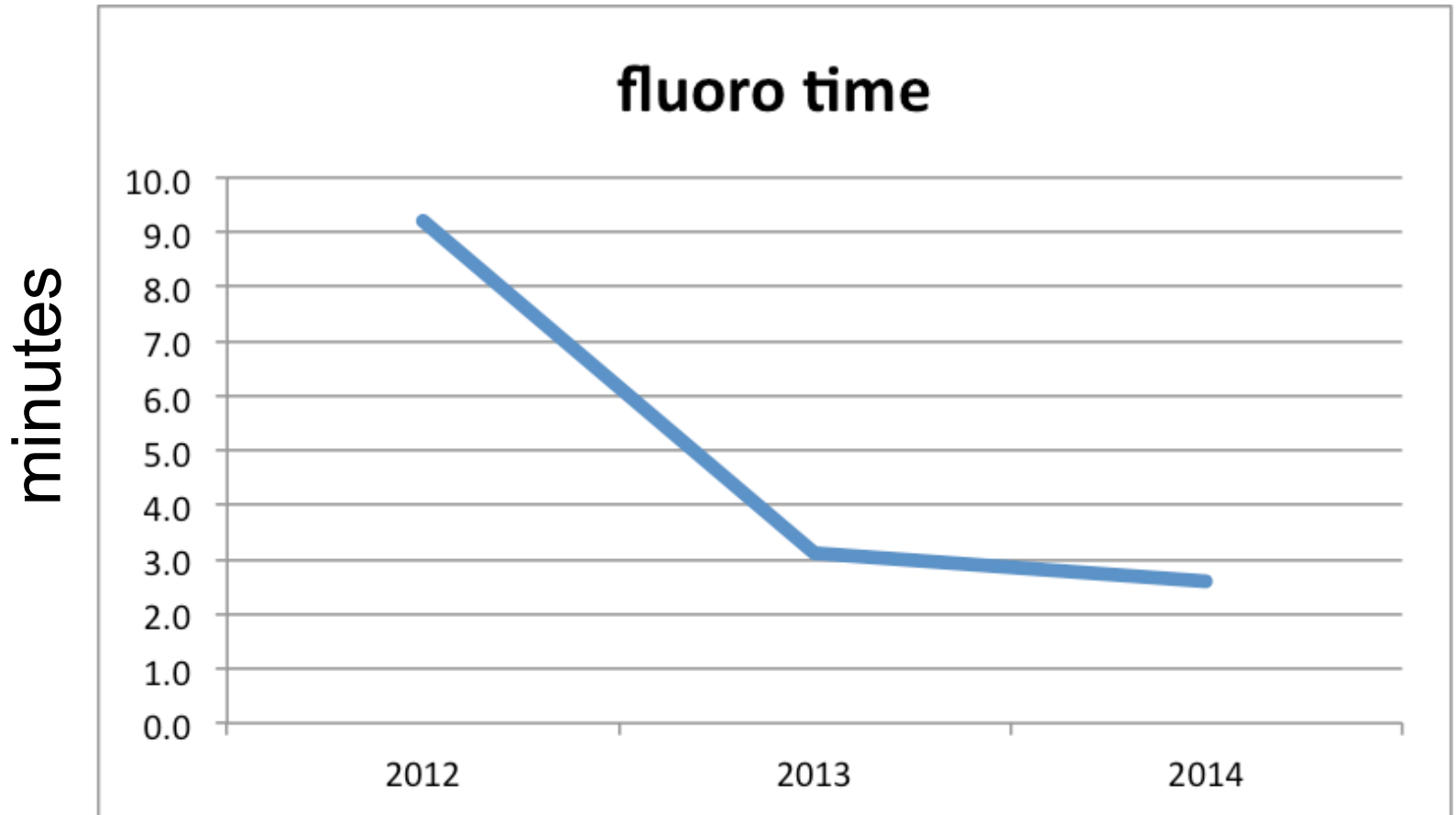
- follow up 2.5-4.7yrs



# Personal outcomes - procedure times

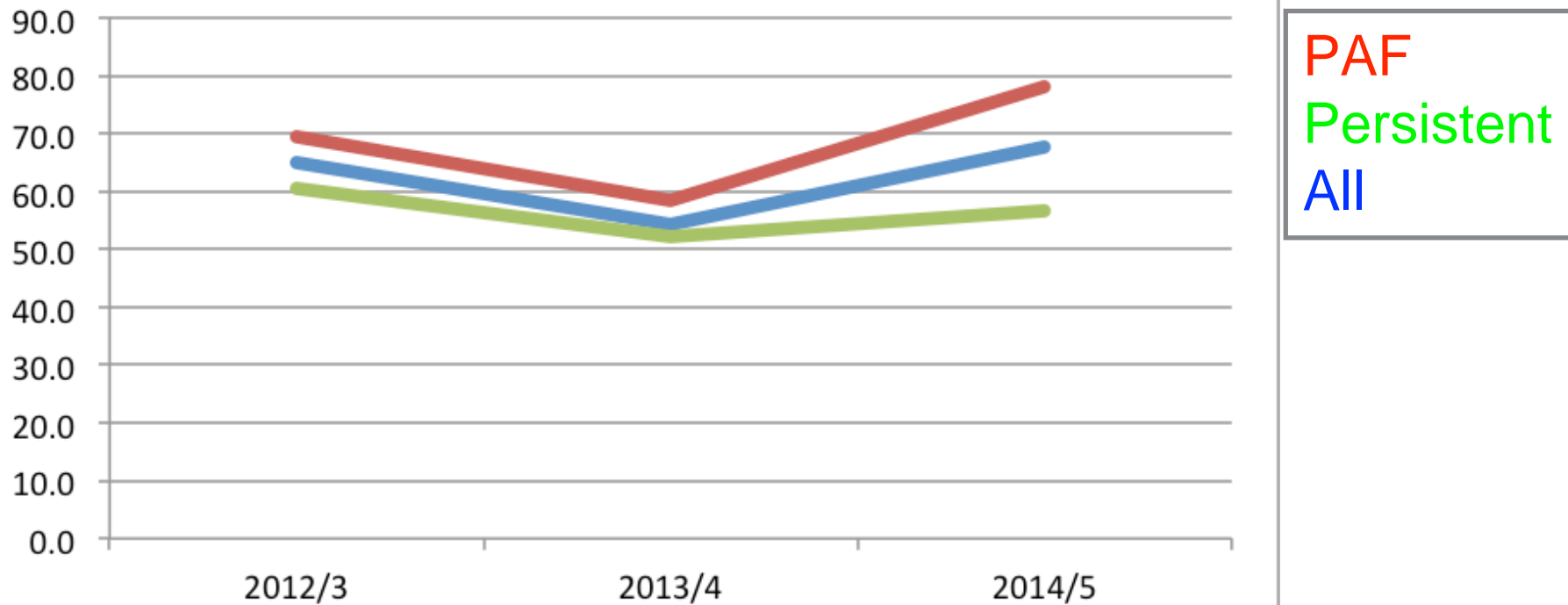


# AF ablation fluoroscopy times

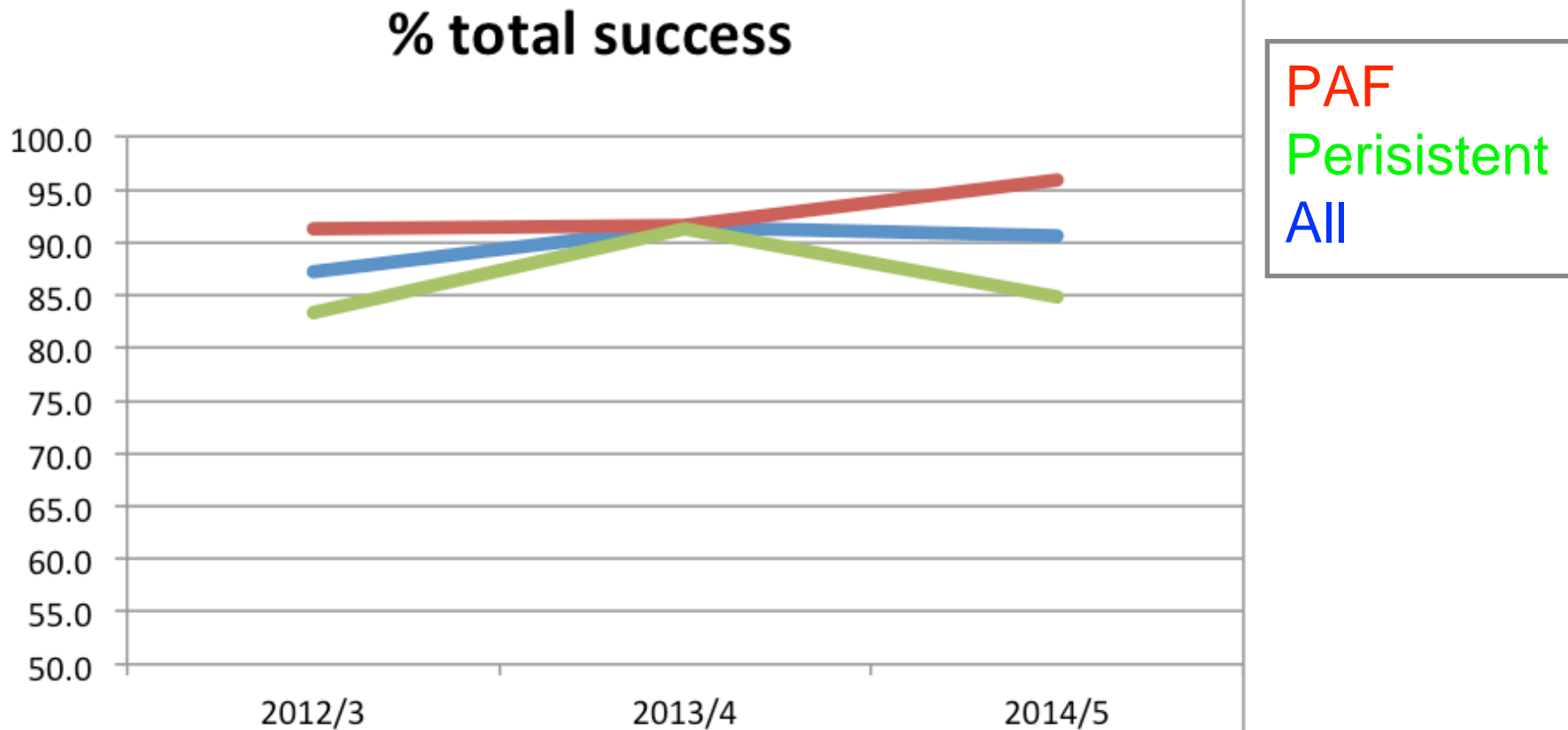


# Success rates after single procedures

**% 1st time success**



# Success rates after multiple procedures



# Conclusions

- AF ablation works by modifying the electrical properties of the atria and autonomic balance of the heart
- It does have a long-lasting effect for many people
- Results are getting better as technique improves and referrals are made earlier

