

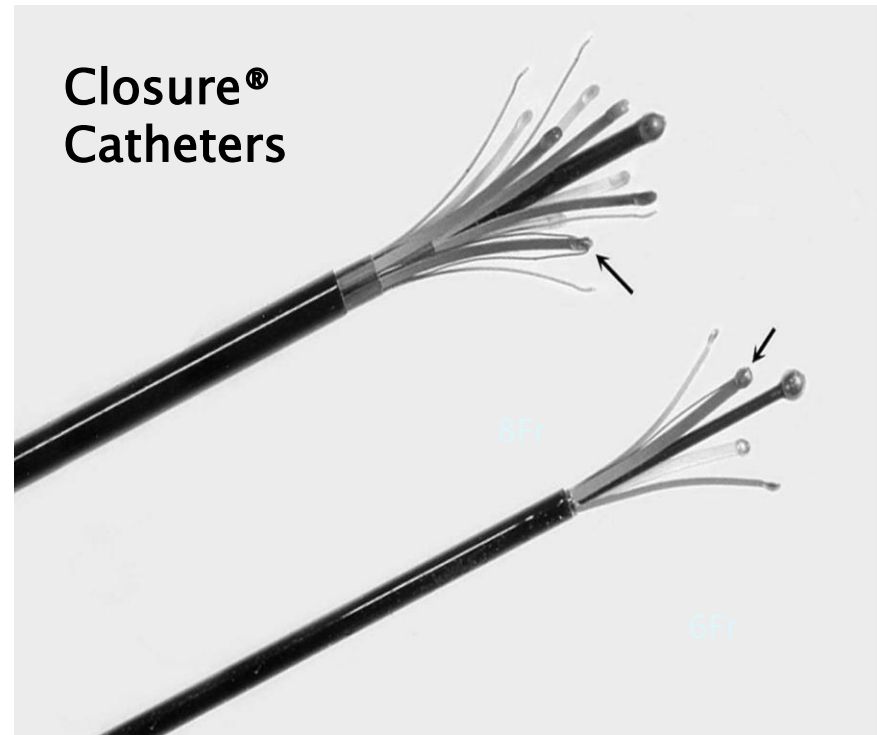
10 rules to respect to ensure the success of RF ablation

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The Grand-Daddy:

- ▶ First in UK 12th March 1999



The Grand-Daddy:

- 93.5% closure at 11.1 years
 - Venous Forum Poster Prize 2013
- BUT
 - Slow
 - GA
 - Binding



10 Rules to respect to ensure success of RF Ablation

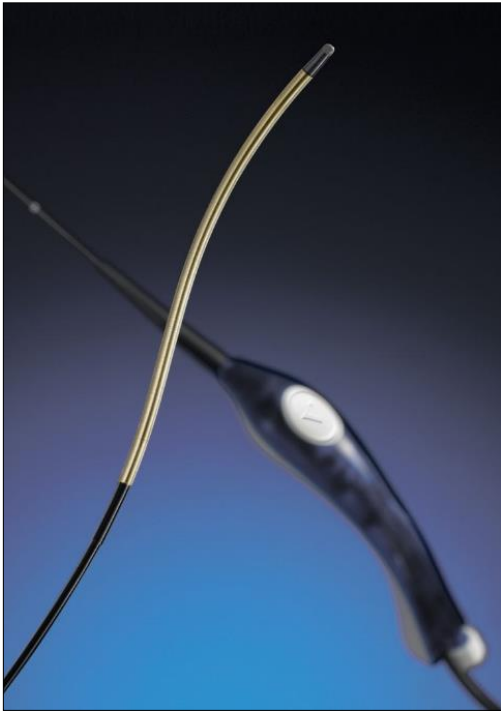
Rule 1: Know your RF system

- ▶ This is NOT the only RF Ablation system!



RF Systems

Segmental



Bipolar RF



Monopolar RF

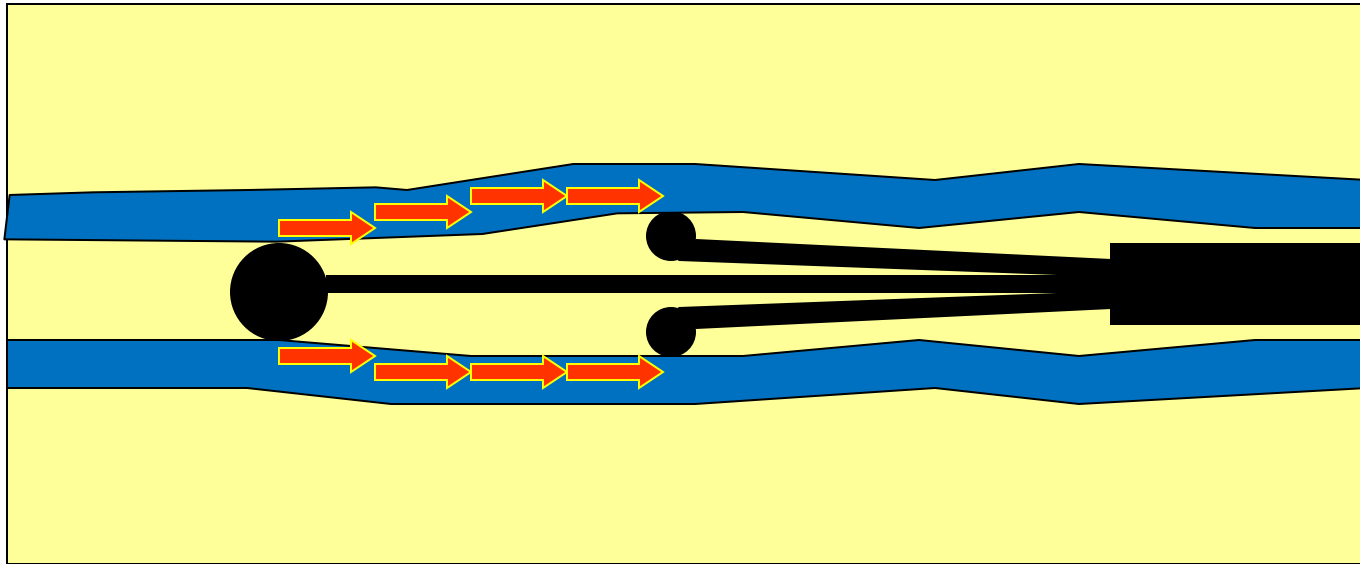


Bipolar RF
But specific for IPV

Rule 2:

Know how your system works

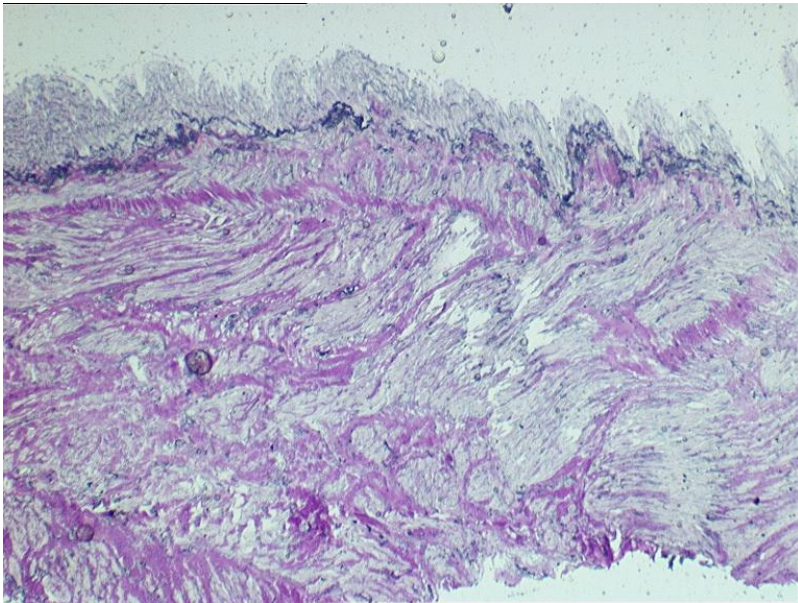
Bipolar RF



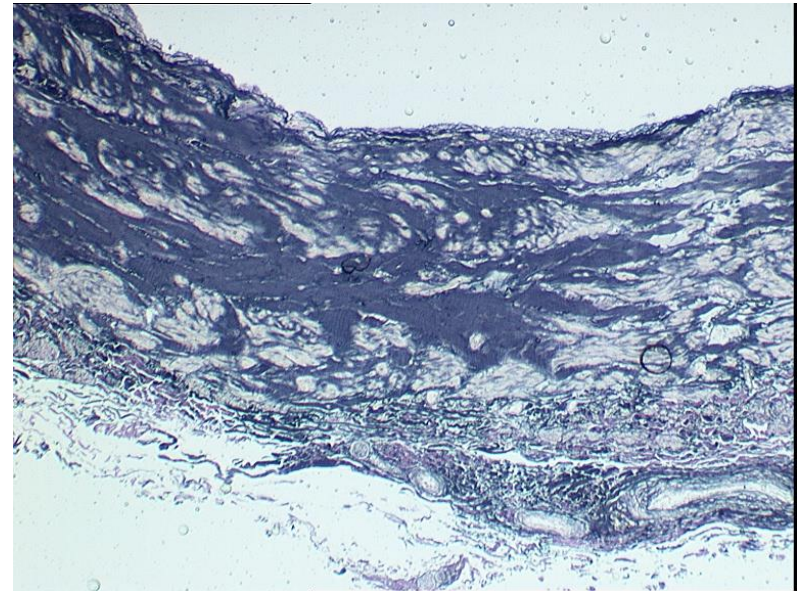
Impedance high >200
Heating = Temp 85 C

Rule 2: Know how your system works

▶ Aiming for Transmural ablation



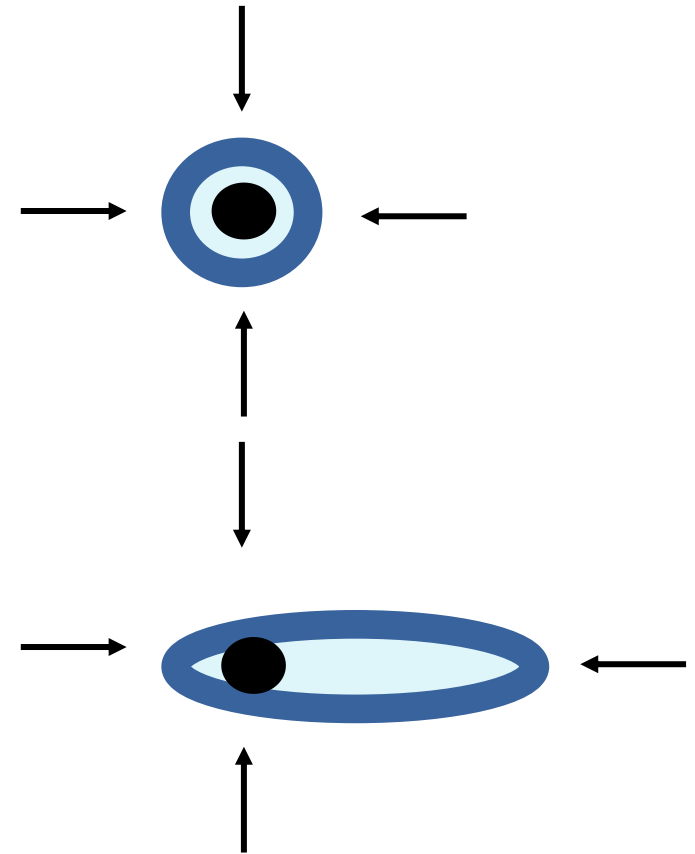
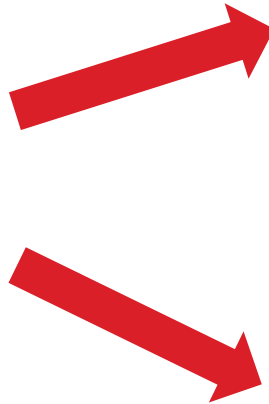
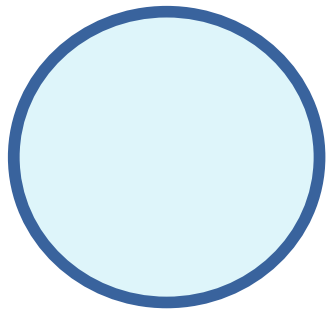
EVG Stain



* Mark S Whiteley, Judy Holdstock
Percutaneous radiofrequency ablations of
Varicose Veins (VNUS Closure)
In: Roger M Greenhalgh ed, Vascular and Endovascular
Challenges . London; BibaPublishing 2004. p 361 – 381

Rule 3: Vein size and contraction

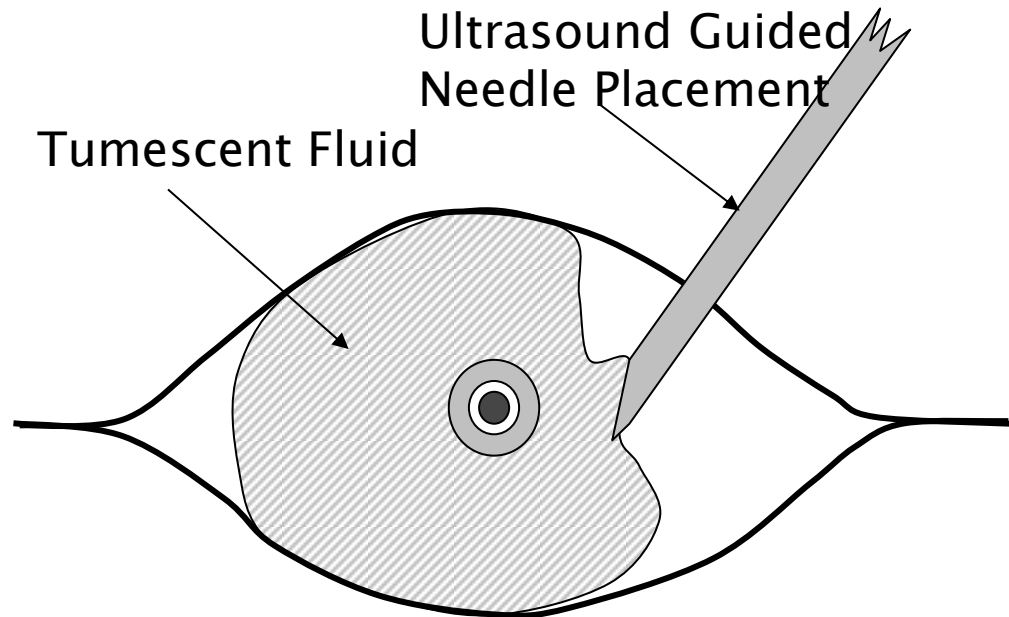
- ▶ RF ablation needs WALL CONTACT



Tumescence

Rule 4: Tumesence

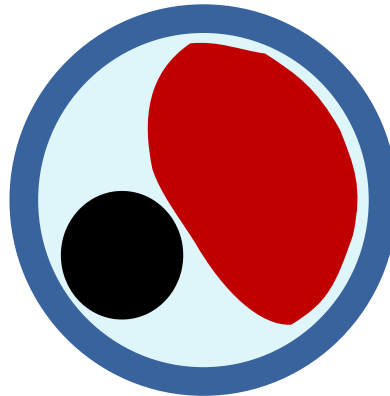
- ▶ Lots of fluid, close to wall
- ▶ Make vein contract
 - Vasoconstrictor / ?Cold



Rule 5:

Avoid thrombus and calcified wall

- ▶ RF ablation needs WALL CONTACT



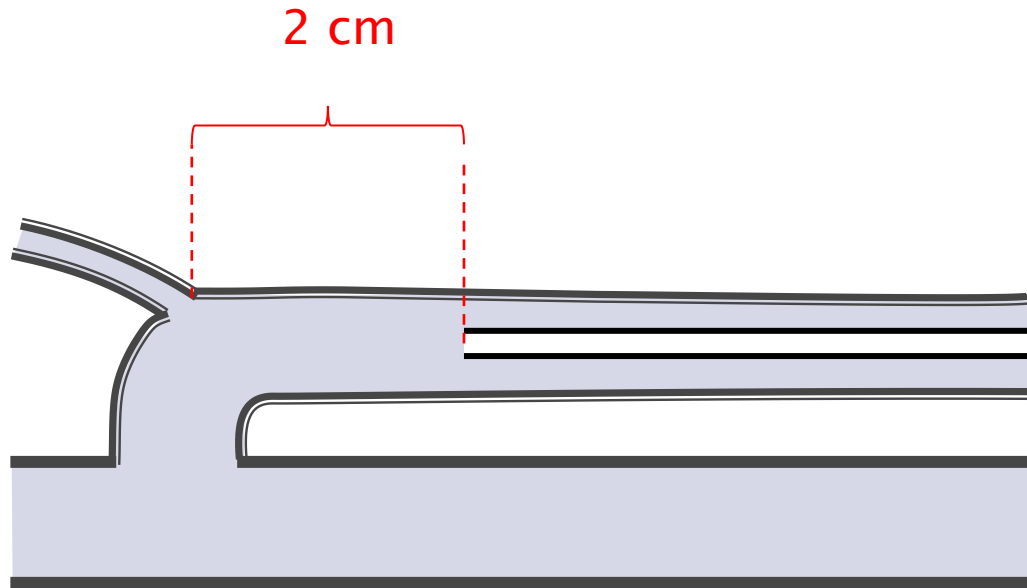
Rule 6: Don't heat blood

- ▶ Head down position
- ▶ Good tumescence
- ▶ ? Compression

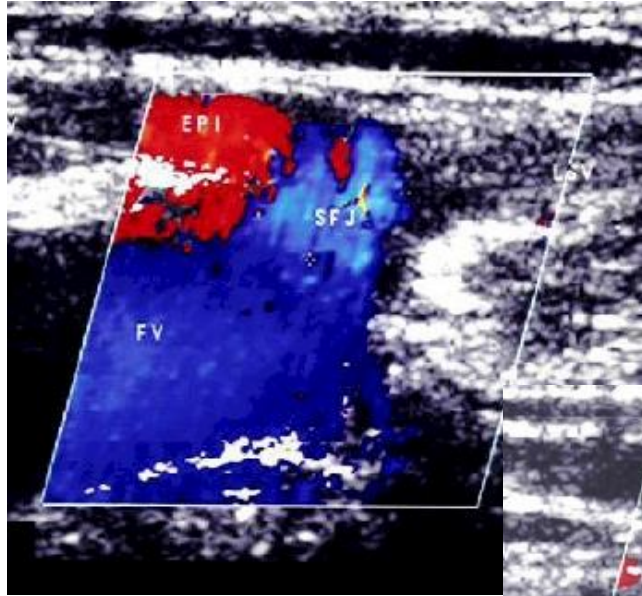


Rule 7: Position at SFJ

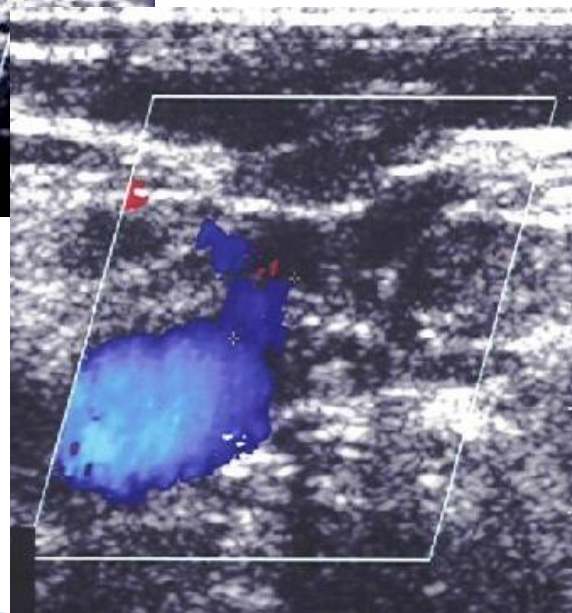
- ▶ 2 cm??? Really???



Rule 7: Position at SFJ



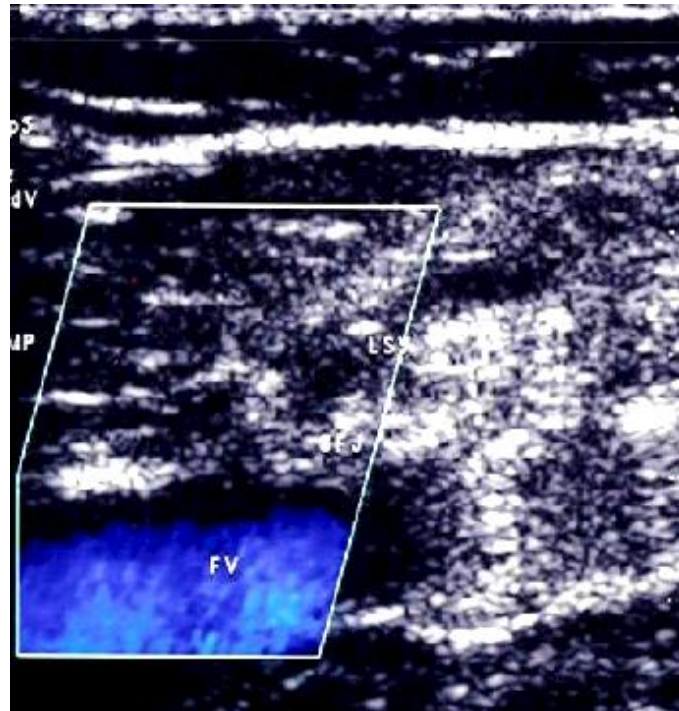
1 Week Post VNUS



1 Year Post VNUS

Rule 7: Position at SFJ

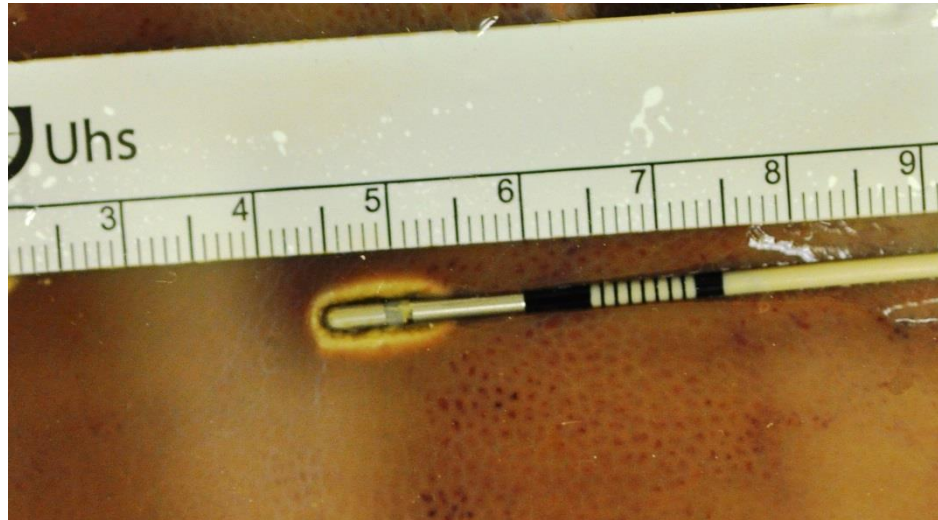
- ▶ Flush closure in 40% in 2001



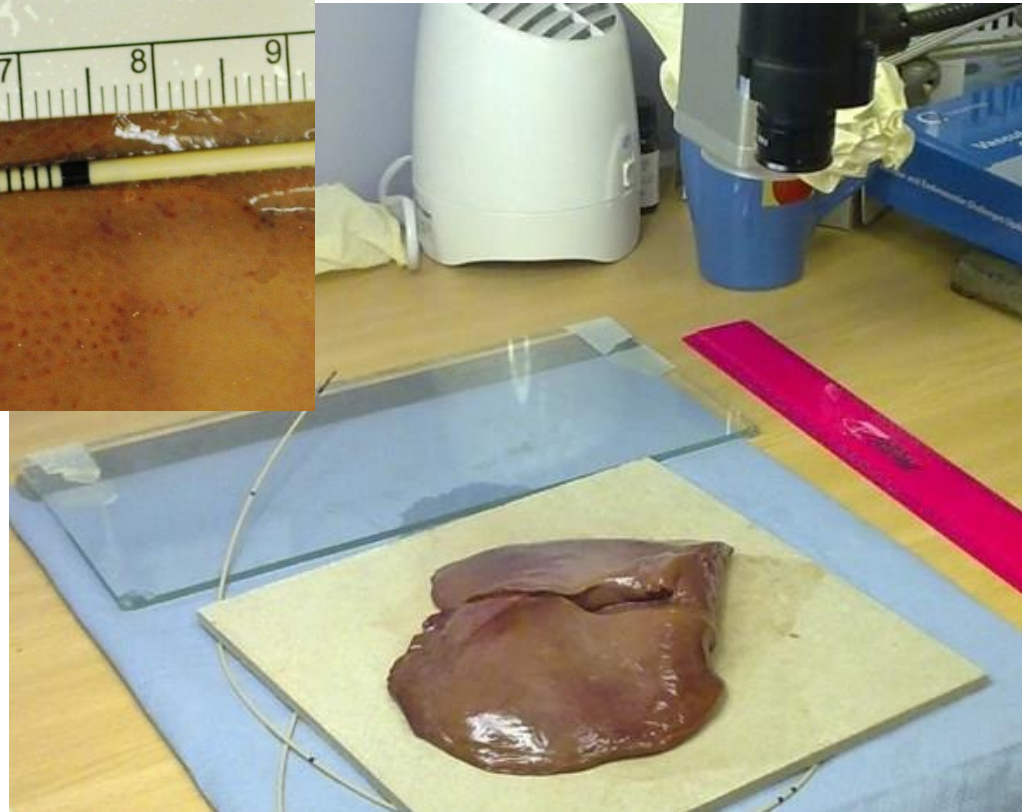
Rule 8:
Don't cause Charcol
Rule 9:
Be careful of IFU's



Effect of pull back speed on LEED



Porcine Liver Model



Effect of pull back speed on LEED



Low LEED is Inadequate

Normal LEED = 72 J/cm

High power - fast pull back

= Carbonization

= Inadequate thermal spread



Effect of pull back speed

LEED

18

20

60

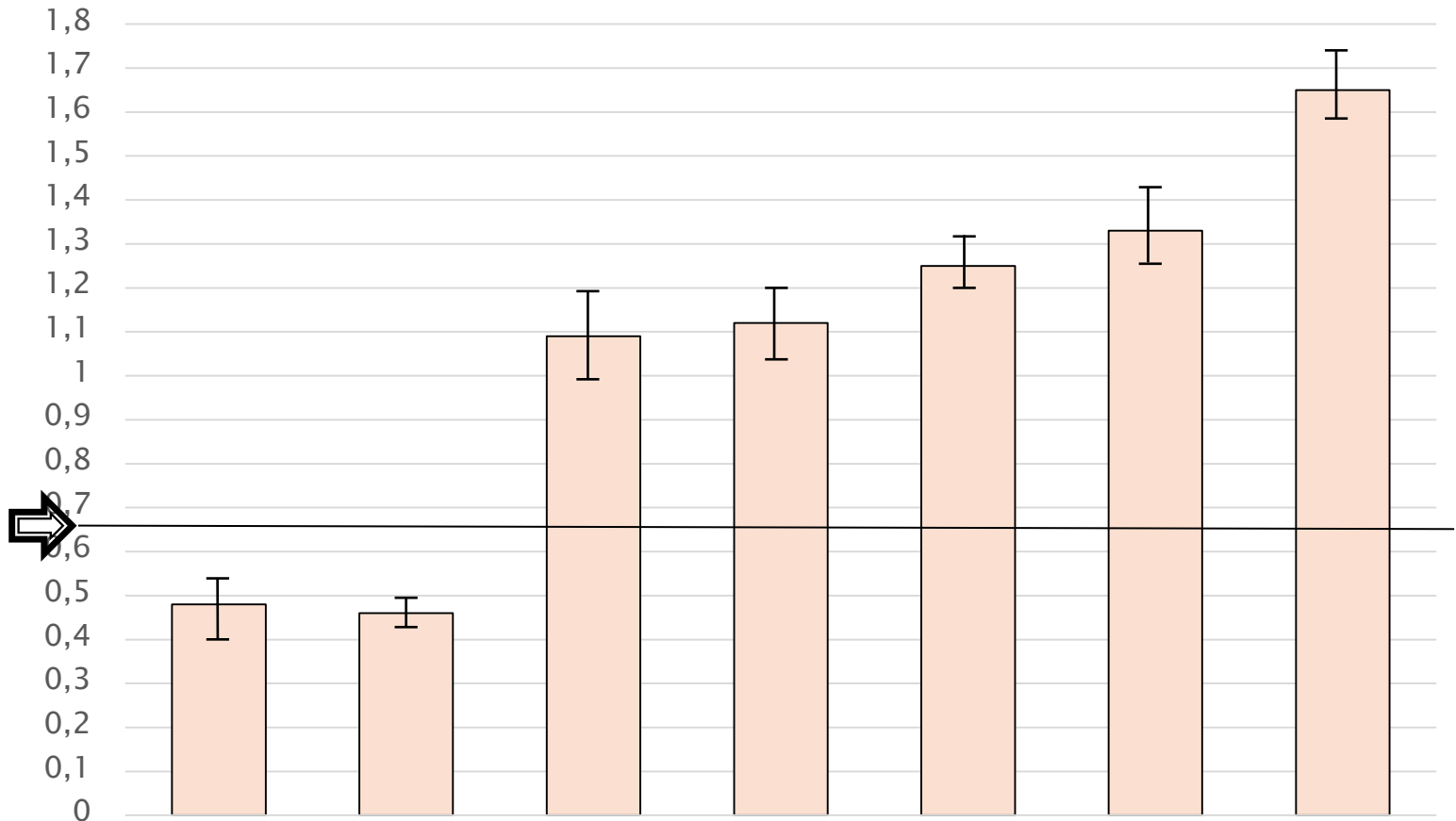
72

72

72

72

Thermal spread from device (mm)



18W, 1s/cm 20W, 1s/cm 20W, 3s/cm 18W, 4s/cm 12W, 6s/cm 6W, 12s/cm 6W, discont.

Power (Watts), Pull-back speed (sec/cm)

Effect of pull back speed

- ▶ Confirmed in Human GSV (ex vivo)



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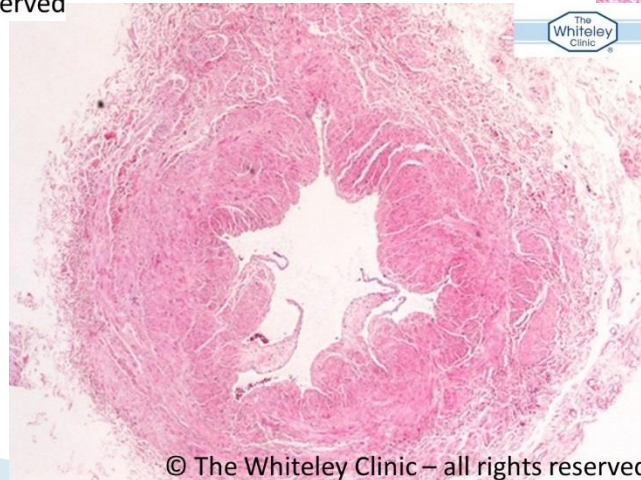
Control GSV

LEED 72 J/cm
18 W 4 Sec/cm



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LEED 72 J/cm
6 W 12 Sec/cm



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Understand mechanism to select correct technique

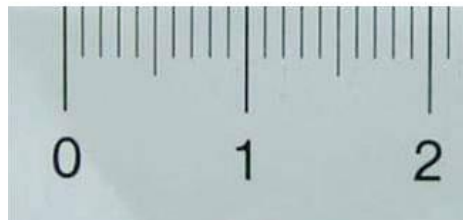


Rule 10: Choose the right device for the right vein

Segmental



Bipolar RF



Monopolar RF



Bipolar RF
But specific for IPV