



DU for Diagnosis of Failing Arterial Stents  
 Why is It Important and How Often?

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DU Surveillance  
for Lower Extremity Revascularization



- Widely accepted for *vein grafts*
- Less well accepted for *prosthetic grafts*
- Controversial for *peripheral stent grafts*
- Very controversial for *peripheral stents*

*SVS Practice Guidelines. JVS 2018;68:256-84*



*Clinical evaluation + PVRs + DU*

	postop	3 mos	6 mos	12 mos	Later
Vein graft	+	+	+	+	annually
PTFE graft	±	±	±	±	annually
<b>Stent</b>	+	+	+	+	q 6 mos



DU for Peripheral Stents  
*Why do it?*

- Revision of *failing* stent may yield better patency rates than *failed (occluded)* stent
- May not be able to restore patency if occluded
- Performing endovascular Rx easier than open revision or new bypass

DU for Lower Extremity Stents  
 Patients and Methods

- 172 stents in 110 patients
- 30 iliac + 89 fempop arteries = 119 segments
- Treated length  
 iliac: mean, 7.5 cms (range, 4.0 - 15.0)  
 fempop: mean, 12.2 cms (range, 2.0 - 21.0)
- Surveillance – DU in accredited NIVL

### DU for Lower Extremity Stents Patients and Methods

- DU measured PSV and PSV ratios every 2 cms within stent and adjacent arteries
- **“Abnormal” DU findings:**
  - focal PSV > 300 cm/s
  - uniform PSVs < 45 cm/s
  - $V_r > 3.0$
- One week postop, then every six months
- Follow up = 22 mos (up to 48 mos)



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### DU for Lower Extremity Stents Results of 119 stented segments

- 52% (62): all 3 “normal” DU criteria after average two-year follow-up
- 48% (57):  $\geq 1$  “abnormal” DU criteria
  - 40: intervention
  - 17: no intervention (pt refusal, surgeon)
    - 5 remained patent (f.u. = 7.2 mos)
    - 12 occluded



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### DU for Lower Extremity Stents Results: Occluded Stented Segments

$\geq 1$  “abnormal” DU finding & not treated  
*70% (12/17) occluded*  
 Vs.  
 “normal” DU findings =  
*3% (2/62) occluded*  
 (p = 0.0001)



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### DU for Lower Extremity Stents Results of 12 occluded stents

- 6 - no intervention (claudication again)
- 4 - failed additional endoRx, needed bypass
- 2 – amputations

***DID NOT DO WELL IF STENT OCCLUDED!***



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### CONCLUSION DU Surveillance for Lower Extremity Stents

Significantly predicted stent occlusion

- $V_r > 3.0$
- focal PSVs > 300 cm/s
- uniform PSVs < 45 cm/s throughout stent

One week postop, then every six months

***DO IT!***



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### DU for Lower Extremity Prosthetic Grafts

- Useful for fem-tibial prosthetic grafts
- *Not for* fempop prosthetic grafts

*(Calligaro KD, Dougherty MD, et al. Surgery 1996;120:455-59)*  
*(Calligaro KD, Dougherty MD, et al. Ann Vasc Surg 2001;15:520-24)*



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### DU for Lower Extremity Stent Grafts

75% (15/20) with abnormal DU findings

Required prophylactic intervention (8)

Or occluded without intervention (7)

vs.

3% (2/72) with normal DU findings

occluded without intervention

(p = 0.0001)

*(Troutman, Madden, Dougherty, Calligaro. JVS 2014;60: 1580-84)*



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