

Spiral Flow Prosthetic Grafts In Lower Extremity Bypasses: 1-Year Results And Beyond

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Disclosures

Speaker/consultant to Vascular Flow Technologies

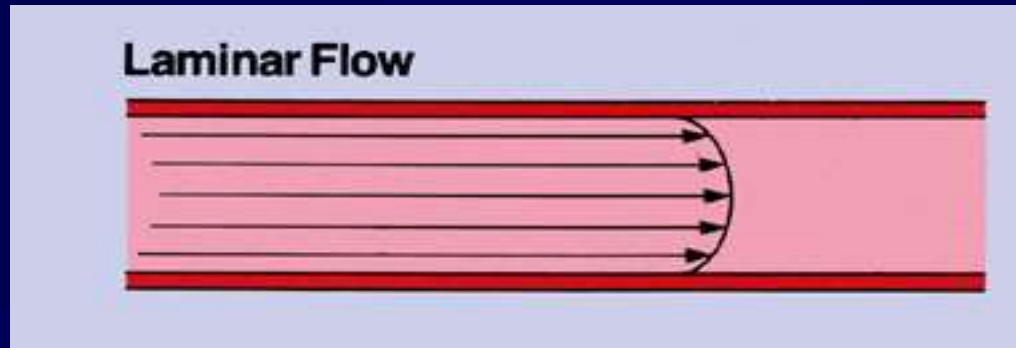
Vascular Flow Technologies Ltd

Lancet Nov 1991.

- Initial clinical trials published in 1996, 2008 and 2012
- Initial development by Ninewells Dundee University Hospital, UK 1998

Spiral laminar flow (SLF) is the normal blood flow pattern in healthy arteries, but not present in standard grafts

Classic laminar flow



Spiral laminar flow



Biological advantages of SLF

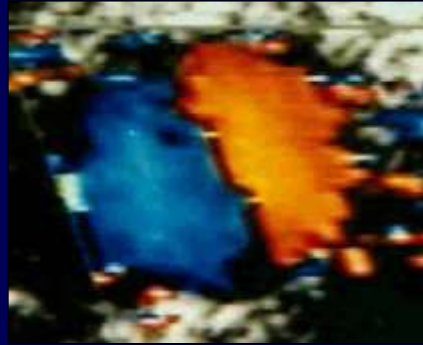
- Holds cellular elements in centre of flow stream, reducing near wall turbulent kinetic energy

Resulting in:

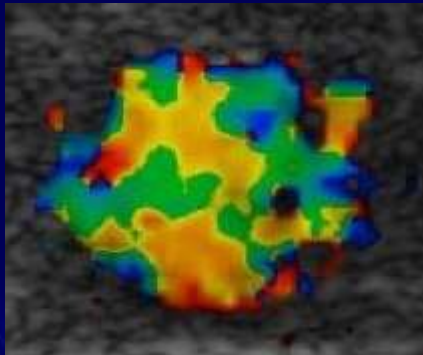
- Reduction in downstream disease progression and neointimal hyperplasia

In-Vivo Transverse Ultrasound Flow Images

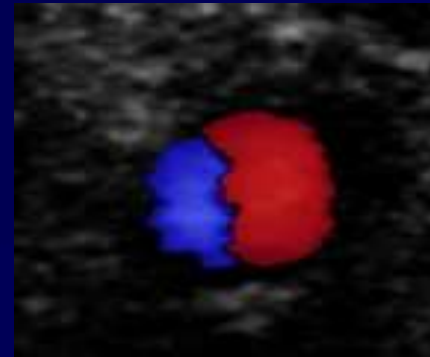
Healthy Artery- Spiral Laminar Flow



Standard graft-Turbulent Flow



SLF Graft- Spiral Laminar Flow



The graft



Data

- 68 SLF grafts from Feb 2011 to Oct 2014. Prospective data on-going.
- 136 conventional PTFE grafts from same unit from Jan 2003 to Dec 2008. Retrospective analysis.
- Comparison based on 1 year data available on 124 conventional and 54 SLF grafts.

Demographics/Data

	SLF	Conventional
Age:	69.6mean (47- 92)	70.3 (45-93)
Sex:	78% male	48% male
Critical ischaemia:	53%	55%
• Level:	AK 48% BK/TV/C 52%	AK 13% BK/TV/C 87%
• Vein cuff to all BK/distal anastomoses		
• SLF TM Imaged post-operatively at all distal anastomoses and run-off vessels		

1 year outcomes

1^o patency (Actuarial %)

Overall	SLF 76%	Conventional 48%
AK	77%	50%
BK/TV/C	61%	48%

2^o patency (Actuarial %)

Overall	SLF 87%	Conventional 55%
AK	88%	71%
BK/TV/C	79%	53%
Amputation rate:	SLF 2%	Conventional 10%

Conclusions

- Benchmarked against conventional grafts – 30% actuarial improvement in primary and secondary patency.
- Results out to 3 years, particularly of more complex grafts, would appear to indicate a sustained patency advantage over conventional grafts.
- Significantly encouraging initial results to warrant continued usage and further long term data acquisition.