Female Sex With Statistically Significantly Smaller Aortoiliac And Femoral Arteries Than Male, Implications For Future PAD Outcomes Studies

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BACKGROUND

- Discrepant arterial sizes between sexes
- Lack of consensus on treatment of PAD in females

https://stock.adobe.com/search?k=%22sports+science%22&asset_id=506059116

108 Females   108 Males
BMI matched
CTA's scored for outer diameters

The Visual MD. https://storymd.com/journal/m9abq8dtgj-arteries

RESULTS

Table 1: Comorbidities table

		Female (N=108)[1]	Male (N=108)[1]	p-value[2]
Height		158 (152, 165)	178 (170, 180)	<0.001*
Weight		68 (59, 89)	89 (75, 104)	<0.001*
BMI		27 (24, 34)	29 (25, 33)	0.658
BSA		1.72 (1.60, 2.01)	2.08 (1.92, 2.25)	<0.001*
Tobacco Use				0.112
	Current	4 (3.7%)	5 (4.7%)	
	Prior	57 (53%)	42 (39%)	
	Never	46 (43%)	60 (56%)	
Hypertension (HTN)		92 (85%)	87 (81%)	0.470
Diabetes (DM2)		34 (31%)	36 (33%)	0.884
Chronic Kidney Disease (CKD)		24 (22%)	20 (19%)	0.613
Dialysis		6 (5.6%)	7 (6.5%)	>0.999
Heart Failure		40 (37%)	47 (44%)	0.405
COPD or emphysema		12 (11%)	7 (6.5%)	0.337
Cerebral vascular disease		11 (10%)	22 (21%)	0.039
Coronary artery disease (CAD)		68 (63%)	69 (64%)	>0.999
No peripheral artery disease diagnosis		98 (91%)	99 (92%)	>0.999

- Abdominal aorta (AA), common iliac (CIA), and common femoral (CFA) artery areas were significantly larger in males than females (p<0.001) despite similar BMIs and vascular comorbidities (Table 1).
- When divided into four quartiles, women had smaller vessels in all arteries (Table 2).
- On multivariate analysis, male gender positive correlation with all arterial sizes.
- Weight, diabetes mellitus, and prior smoking were inversely correlated with vessel area.
- Current smoking was inversely correlated with AA and CIA but not CFA diameters.

1. Stavroulakis K, Donas KP, Torsello G, Osada N, Schonefeld E. Gender-related long-term outcome of primary femoropopliteal stent placement for peripheral artery disease. *J Endovasc Ther*. 2015;22:31–37
2. Choi KH, Park TK, Kim J, Ko Y-G, Yu CW, Yoon C-Het al. Sex differences in outcomes following endovascular treatment for symptomatic peripheral artery disease: an analysis from the K- VIS ELLA registry. *J Am Heart Assoc* 2019;8:e010849. 10.1161/JAHA.118.010849

Level a
Level b
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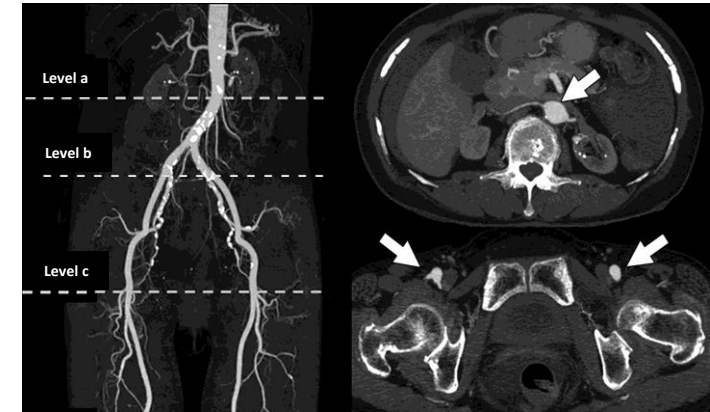
Table 2: Female vs. male arterial vessel area

	Female (mm²) (N=108)[1]	Male (mm²) (N=108)[1]	p-value[2]
AA	121 (91, 147)	185 (143, 214)	<0.001*
RCIA	49 (37, 67)	57 (44, 83)	0.002*
RCFA	33 (24, 44)	41 (28,59)	<0.001*
LCIA	49 (40, 64)	63 (44, 86)	<0.001*
LCFA	32 (25, 44)	44 (28, 58)	<0.001*

[1]Median (IQR); n (%)
[2]Wilcoxon rank sum test; Fisher's exact test

CONCLUSION: In all-comers, females have smaller arteries than males. This remains true even when controlling for BMI and other vascular comorbidities. Future studies in PAD population planned.