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- Radiologie Interventionnelle
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- Chirurgie cardio-vasculaire et thoracique
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# PAD in Women

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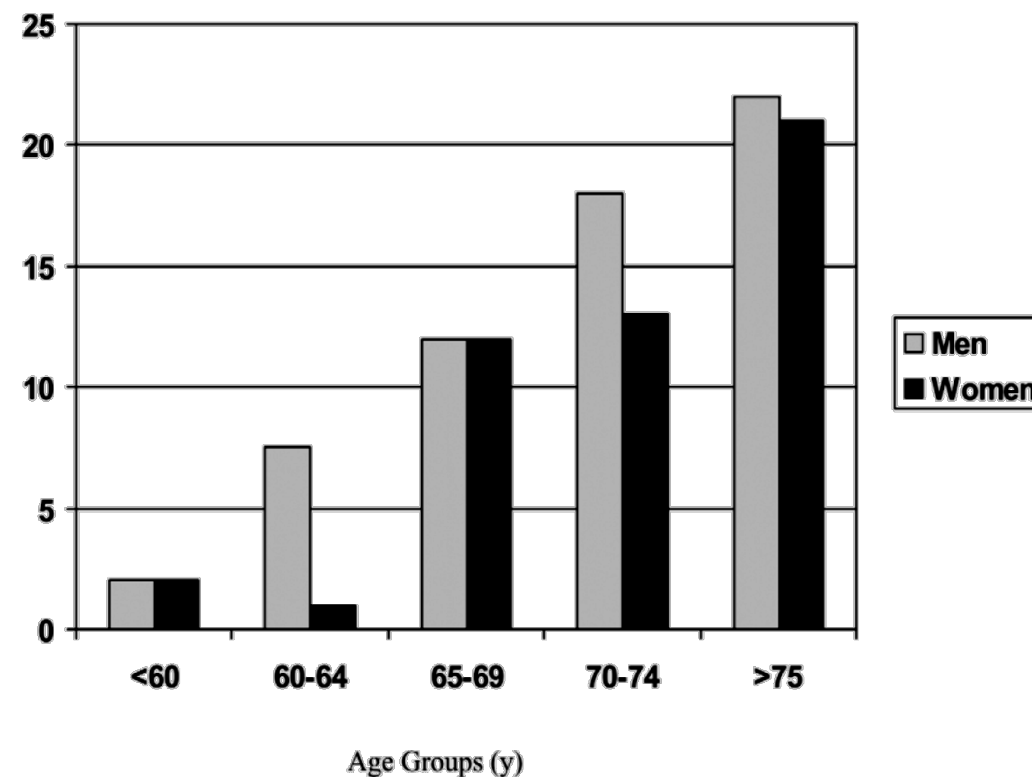
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# Epidemiology of PAD

- 8-12 million Americans (~4.3%)
- Prevalence increases with age
  - 0.9%, 40-49 years
  - 2.5%, 50-59 years
  - 4.7%, 60-69 years
  - 22%, >75 years

PAD  
Prevalence  
(%)



- **\*Similar** in Women and Men



# Women vs. Men



- **The overall prevalence of PAD in women and men is similar** (Sigvant et al., 2007), **HOWEVER:**
  - Prevalence of **asymptomatic PAD** in **women > men** (Feinglass et al., 1994)
  - Women often diagnosed **later age and stage** than men.
- Women are **more likely to seek primary care** than men
  - non-vascular specialists may not be able to identify PAD as accurately as vascular surgeons (Vegda et al., 2009; Klan et al., 2006)
- PAD symptoms in women may be **masked by other co-morbidities** (ie. **osteoporosis, arthritis** or **neuropathic** entities) (Teodorescu et al., 2013)





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# Differences in clinical presentation and outcomes between males and females after lower extremity bypass interventions

- A retrospective analysis of supra-inguinal and infra-inguinal bypass procedures collected from the greater New York region of the **Vascular Quality Initiative (VQI) database**
- A total of **1319 patients** (832 males and 487 females) underwent bypass interventions for symptomatic PAD. Data were collected from **January 2011 to January 2015**
- **Females** presenting with symptomatic PAD:
  - **older age** than males ( $p < 0.001$ )
  - **lower ABI** (Right:  $p < 0.05$ ; Left:  $p < 0.01$ ).





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# Differences in clinical presentation and outcomes between males and females after lower extremity bypass interventions

- **Fewer females** than males were discharged home ( $p < 0.001$ ).
- **Females** were more likely to have **post-operative complications** than males ( $p < 0.01$ ).
  - graft infections ( $p < 0.01$ )
  - required transfusions ( $p < 0.01$ )
  - respiratory dysfunction ( $p < 0.05$ )





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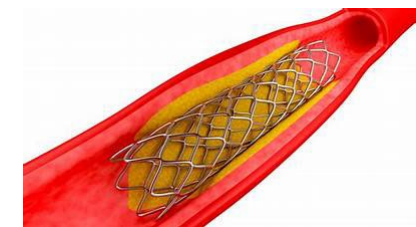
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## Comparison of males and females presenting for peripheral vascular intervention of superficial femoral artery and popliteal artery in the national VQI database

- A retrospective analysis was performed of all males and females who underwent endovascular interventions of SFA or popliteal arteries between **April 2011 and September 2016** in the **national VQI** database.
- A total of **18,060** patients (57.2% males and 42.8% females) were extracted
- **Females** were **older** (66.55 vs. 69.45 years;  $P < .001$ )
- **Females** presented with **more rest pain** (7.4% vs. 11.1%;  $P < .001$ ) and **tissue loss** (16.3% vs. 19.67%;  $P < .001$ )







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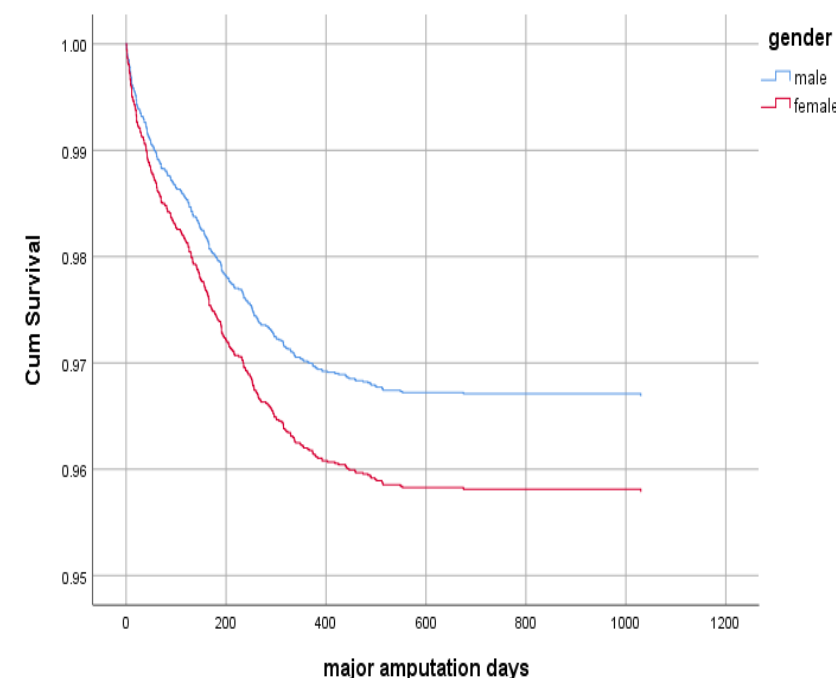
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## Comparison of males and females presenting for peripheral vascular intervention of superficial femoral artery and popliteal artery in the national VQI database

- More **females** **never** smoked (13.3% vs. 28.8%;  $P < .001$ )
- **No difference** was seen for primary patency, mortality and overall amputations
- **Females** had **worse major amputation-free survival** ( $p=0.02$ )





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# Peripheral arterial disease in women-Review

Vasa (2024), 53 (6), 366–370

- Women when symptomatic frequently have **more complex** and **severe** disease including critical limb ischemia
  - Ortmann J, et al. Gender is an independent risk factor for distribution pattern and lesion morphology in chronic critical limb ischemia. J Vasc Surg. 2012;55(1):98–104.
- Women **are less likely to undergo amputation or vascular surgery** than men. However, women are **more likely** to undergo an **endovascular** procedure
  - Egorova N, et al. Analysis of gender-related differences in lower extremity peripheral arterial disease. J Vasc Surg. 2010; 51 (2):372–8.
- Lower bypass rates in women could be the consequence of higher **age** and **smaller** vessel size precluding bypass.





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# Peripheral arterial disease in women-Review

Vasa (2024), 53 (6), 366–370

- Conclusions:
  - More frequent asymptomatic disease in women than in men and less frequent screening in women may result in a false underestimation of the prevalence of PAD in women.
- All these factors may cause delayed diagnosis and treatment of PAD in women.
- Estrogen hormones have vasoprotective properties that lower the prevalence of atherosclerosis in women of younger age.
  - However, estrogen probably does not have a protective role against the development of cardiovascular disease in women of an older age.



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# Conclusions

- Despite >20 years of knowledge surrounding the differences of women and men with PAD, **females continue to have worse** clinical presentation and inferior outcomes as compared to males.
- We need to **educate** all specialties on signs/symptoms of PAD in Females
  - Better screening and identification of risk factors in females
- We need more dedicated **Female-centered** studies to determine best approach to treat PAD





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***Thank you!***



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