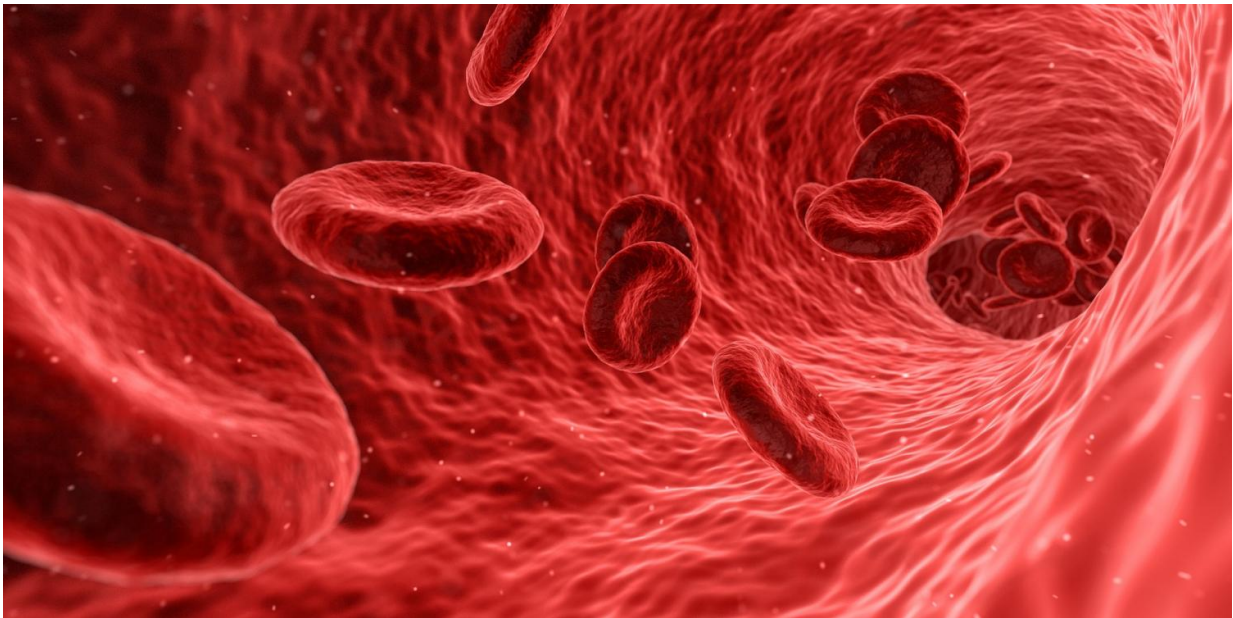


# Study debunks conventional wisdom pointing to gender bias in heart surgery

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Women with heart disease typically receive less complete surgical revascularization with arterial grafts than men do, but not because of gender bias. Instead, factors such as delayed diagnosis of coronary artery disease (CAD) in women may contribute to the differences in treatment, according to a new study published online today in the *Annals of Thoracic Surgery*.

"It appears that by the time women present with heart disease, they are slightly older and may be facing more comorbidities such as obesity and diabetes," said senior author Fraser D. Rubens, MD, of the University of Ottawa Heart Institute in Canada. "As a consequence, these higher operative risks may preclude women from undergoing the more complex multiple arterial revascularization procedures that men receive."

Using the Ottawa Heart Institute database, Dr. Rubens, along with Habib Jabagi, MD, and other colleagues, analyzed data from 19,557 patients who underwent [coronary artery bypass](#) grafting (CABG) between January 1990 and March 2015. Using 45 pretreatment variables, they narrowed the group to 1,254 patients (627 men and 627 women) who had similar characteristics so that they could test for differences between the two groups.

After correcting for various patient factors such as age, body weight, and diabetes, the researchers found no difference in the percentages of bilateral [internal thoracic artery](#) and radial artery use between men and women; the bilateral internal thoracic artery was used in 31.9% of men and 30.1% of women, while the [radial artery](#) was used in 44.5% of men and 44.1% of women. However, significantly fewer women received three arterial grafts when compared with men (7.3% vs. 10.5%).

"Most clinicians assume correctly that women are less likely to receive multiple arterial revascularization, but they tend to believe that this is solely on the basis of a [gender bias](#)," said Dr. Rubens. "The current study shows that gender does not play a significant role in this decision. There is no reason that, when adjusted for all risk factors, the degree of multiple arterial revascularization in women should be any different than what men receive."

According to the researchers, women with CAD are at a significant disadvantage compared with men because they do not consistently

receive the same intensive, invasive evaluation and treatment as men. Men receive greater access to effective cardiac treatments, including medications and revascularization, while women remain undiagnosed for many years.

The researchers explained that one reason for delayed diagnosis may be that current testing strategies, such as exercise treadmills, are "notoriously insensitive and nonspecific in women." Newer diagnostic tests, such as coronary computed tomography (CT) and myocardial perfusion imaging, may address the limitations and allow doctors to better diagnose severe coronary disease in women, allowing for earlier and more complex interventions. In addition, they pointed to a "protective effect" from estrogen that may delay the onset of the [disease](#).

"With earlier diagnoses, women could be referred for revascularization as healthier surgical candidates, affording them the opportunity of complete arterial revascularization strategies with better postoperative outcomes," said Dr. Rubens. "This study has given us the confidence to continue educating surgeons on the feasibility of multiple arterial [revascularization](#) and to ensure that this choice of surgical strategy be based on patient risk profiles and not solely on gender."

CAD is the leading cause of death in the United States in both men and [women](#). The US Centers for Disease Control and Prevention (CDC) estimates that about 366,000 people died from CAD in 2015.

**More information:** Jabagi H, Tran DT, Hessian R, Glineur D, and Rubens FD. Impact of Gender on Arterial Revascularization Strategies for Coronary Artery Bypass Grafting. [DOI: 10.1016/j.athoracsur.2017.06.054](#).

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