

Women's heart disease tied to small blood vessels

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Heart disease affects men and women in different ways. In women, symptoms of burgeoning heart disease are often more insidious, but when a heart attack strikes, it is more lethal than it is in men.

Roughly 25 percent of men will die within a year of their first heart attack, but among women, 38 percent will die. Women are twice as likely as men to have a second heart attack within 6 years of their first one, and women are twice as likely as men to die after bypass surgery.

Yet after a [heart attack](#), women's hearts are more likely to maintain their systolic function—their ability to contract and pump blood from the chambers into the arteries. According to C. Noel Bairey Merz, MD, Director of the Women's Heart Center at Cedars-Sinai Heart Institute in Los Angeles, this suggests that heart disease manifests differently in women, affecting the microvasculature (small [blood vessels](#)) instead of the macrovasculature (major blood vessels) as it does in men.

Dr. Bairey Merz will provide an overview of the sex differences in heart disease at the Physiology of Cardiovascular Disease: Gender Disparities conference, October 12 at the University of Mississippi in Jackson. The conference is sponsored by the American Physiological Society with additional support from the American Heart Association. Dr. Bairey Merz will give her presentation, "Ischemic Heart Disease in Women: Microvascular Coronary Dysfunction," on Friday, Oct. 14.

Function Indicates Form

The heart is a muscle, and as with other muscles, depriving it of oxygen causes damage that diminishes its ability to function. Conventional wisdom notes that the most prevalent form of heart disease is coronary artery disease, in which atherosclerotic plaque narrows and eventually blocks the major arteries leading into the heart, thus cutting off the heart's supply of oxygen. The

damage to the heart tends to be permanent, and after a heart attack, the heart never quite regains its former power.

But when reviewing the medical literature, Dr. Bairey Merz and her colleagues found that women's hearts were less likely than men's to lose their ability to pump blood after a heart attack, and that female heart patients were less likely to present with obstructive coronary artery disease. Instead, the oxygen deprivation and subsequent damage to the [heart](#) is more likely to occur when small blood vessels, not major arteries, become dysfunctional.

"That is the reason women are often misdiagnosed and suffer adverse events," said Dr. Bairey Merz. "Physicians have been looking for male pattern disease, when we need to start looking at female patterns." Likewise, more research is needed to develop appropriate treatments and reduce risk in [women](#), she added.

According to Dr. Bairey Merz, the good news is that it is possible to measure damage to small blood vessels objectively. "The gold standard is reactivity testing, angiograms, and other physiologic measures, rather than anatomic study."

Dr. Bairey Merz will provide an overview of the latest data about these methods and how they can be applied to help clinicians understand gender differences in the pathophysiology of [heart disease](#) during her presentation.

Provided by American Physiological Society

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