

## Risk Factors for Heart Disease that are Unique to Women

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### Abstract

Heart disease is the number one cause of death in women worldwide, yet it is still under-recognized, under-diagnosed, and under-treated disease of women. In the past, the researchers focused mainly on the heart disease of men and women were largely neglected. And to add insult to injury, they have been treated for decades with the protocols developed for men based on the research with men. Some critical sex differences in heart disease necessitate different protocols for women due to their unique risk factors. Some pertinent sex differences related to heart disease are delineated in this article. Importance of raising awareness about women's heart disease for the general public and specifically for women is stressed. Understanding the critical sex differences with regard to heart disease would allow for better prevention and management programs of heart disease in women. All health care professionals need to recognize the unique factors involved in the care of their female cardiac patients.

**Keywords:** *Women's heart disease; Gender differences in heart disease; Cardiovascular disease in women; Sex differences in heart disease*

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A recent heart disease and stroke update by the American Heart Association (AHA) reported that the heart disease is still the leading cause of death globally (17.3 million deaths per year) and the number of deaths is expected to grow more than 36% (23.6 million) by 2030 [1].

Age-adjusted mortality for heart disease has steadily declined in the last four decades for both sexes, but to a lesser extent in women than in men [1-2]. Also, the survival rates are lower in women than in men after the first heart attack within the first year. And within five years after the heart attack, 47% of the women as compared to 36% of the men tend to have a stroke, develop heart failure, or die [3]. These gender differences are unsettling for women and confusing to their physicians, especially when women take 7 to 10 years longer than men in developing the cardiovascular disease [4]. Men on the average tend to have a first heart attack at age 65 while women's average age at the first heart attack is 72. Since 1984, greater number of women have died of heart disease than men each year [3]. Medical doctors and researchers are trying to understand the nature and significance of sex differences in heart disease because they play a significant role in the diagnosis and treatment outcomes.

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In the 20<sup>th</sup> century, researchers focused mainly on men to understand the risks, progression, and treatment of heart disease and stroke making their findings as the basis for treatment guidelines for both men and women. This led to the disadvantage for women because health care providers and women did not fully understand the unique risk factors for their heart disease. Below are some pertinent factors unique to women that intervene in the success of prevention and treatment of heart disease in women.

1. *Women have more risk factors.* In addition to sharing the traditional heart disease risk factors with men, women have added burdens of diseases that uniquely affect them. For example, endometriosis, polycystic ovary disease, preeclampsia and gestational diabetes are risk factors for women's heart disease. For women under 40 years of age, endometriosis has been reported to raise the risk of developing cardiovascular disease by 400% [5-6].
2. *Women have different hearts than men.* There are several significant anatomical differences between the hearts of men and women, which explain many disease manifestation and treatment outcome differences. On the average, a woman's heart weighs 60 grams less than a man's heart making it less durable in an attack. With smaller interior chambers and thinner chamber walls, a woman's heart pumps faster, but it ejects 10% less blood with each contraction [2, 7-8]. The veins of women are 1mm thinner than men's veins, which makes it harder to work on women's hearts. Further, they tend to have looser valve structure rendering them more vulnerable to valve disorders and palpitations than men [9].
3. *Women are less likely to recognize the heart attack symptoms.* Instead of experiencing well-known classic and typical heart-attack symptoms of chest pain, pressure, and cold sweat, many women tend to have subtler, atypical and less differentiating symptoms making it difficult for them to recognize that they are having a heart attack [2]. Instead of crushing chest pain, women may have shortness of breath, fatigue or weakness, nausea, and bloating as major symptoms. Often women tend to downplay all kinds of symptoms and delay seeking treatment. They think some other problem is causing their symptoms because they have had similar symptoms before and were treated for different issues than heart attack. Even their doctors might misdiagnose and the real issue of heart attack may only be discovered when it is too late [2-3].

In the 21<sup>st</sup> century, heart disease continues being the leading cause of death in women, yet it is still under-recognized, under-diagnosed, and under-treated [7]. Understanding the critical sex differences in heart disease allows the health care professional to give better preventive care and design better treatment programs for women. AHA is doing a great job in raising awareness about this problem both with professionals and general public. A major AHA event of *Go Red For Women* focuses on this issue every year. I have served on the Tom Green County Division of the American Heart Association Board of Directors for 31 years (board president for four of these years). During my involvement with AHA for over three decades, I have seen an enormous progress in the way the heart disease is diagnosed and treated in both women and men. In 2004, to dispel the 20th century myths about women's heart disease and raise awareness about heart disease and stroke as a number one killer of women, the AHA created *Go Red For Women*. This initiative was designed to empower women to take charge of their heart health. As a heart disease and stroke prevention movement, *Go Red For Women* challenges women to know their risk for heart disease and take action by giving them the tools they need to lead a heart healthy life [10]. Based on the AHA research, a woman who is exposed to *Go Red For Women* events tends to exercise regularly, eat healthier diet, visit her doctor for important tests, and influences others by talking about heart health. Further, the AHA reported that within 12 months of an event, 91% of *Go Red* women visited their doctor to get their heart checked compared to 73% of all U.S. women [10].

Time has arrived when the medical schools worldwide need to train the future physicians with new cardiology guidelines that take into consideration the sex differences. Many sex differences such as in atherosclerosis are still not fully understood and need further research [7]. All health care professionals need to recognize the unique factors involved in the care of their female cardiac patients [2,8]. Considering the different risk factors for heart disease for women and men, gender-specific interventions are needed, which may yield effective outcomes. Governments all over the world need to make women's heart health a priority and launch initiatives and fund multisectoral clinical trials to halt and reverse the increasing death rate due to heart disease in women. Not doing this is no longer a viable option.

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