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## Do You Know Your Calcium Score?

### The Newest Risk Factor

By ALICE PARK

First it was blood cholesterol that could give you an early warning that a heart attack might be around the corner. Then came c-reactive protein. And now that doctors can get a better look at what's inside your heart arteries, they are taking a new interest in something they have always known was present in problem vessels: calcium. Hospitals, clinics and even gyms are touting quick and easy scans that can measure the amount of calcium in your coronary arteries in minutes. But while calcium scores can be helpful, doctors caution that using them to predict who is at risk of heart disease isn't always straightforward.

Ever since the 1700s, when doctors discovered bony material in heart vessels, physicians have known that some blood-vessel cells can morph into bony tissue. Now we know that excess cholesterol tends to trigger this process in the arteries that feed the heart. Calcium can then build up in the vessels and stiffen them, laying the foundation for heart disease. Getting one's calcium score is as simple as getting a quick injection of a contrast agent in the arm and a zap from an ultrafast X ray, either by electron beam computed tomography (EBCT) or by multidetector CT. Studies show that in every age group people with higher calcium levels have a greater risk of heart attack than do people of the same age with lower scores.

But that doesn't mean everyone with a high calcium score is headed for a heart attack. For one thing, as we age, we tend to build up more plaque, and therefore more fat and calcium, in our arteries. Thus higher calcium numbers in young people are a more significant indicator of potential problems than they would be in the elderly. It also turns out that even two people of the same age with the same calcium scores don't necessarily have the same heart-disease risk. Like cholesterol, coronary calcium is only one of many risk factors that determine how vulnerable you are to heart abnormalities. The latest research, for example, shows that in some people, the calcium is spread thinly throughout the coronary arteries, while in others it is clumped in larger lesions. Which is worse? Doctors still aren't sure, but they are developing some interesting theories. Dr. Linda Demer, a cardiologist at UCLA who has been studying coronary calcium for 15 years, believes that having many small calcium deposits may be worse than having fewer larger ones. Her work suggests that it is not the total amount of calcium that makes vessels vulnerable but rather the way the deposits are anchored to the blood vessels. Since the vessels are flexible and the calcium is hard, the arteries are weakest wherever the calcium adheres; the more

deposits, the more tension points where the vessel can tear.

So who should get their hearts scanned for a calcium score, and who should be worried if the number is high? So far, studies show that scans are best at predicting heart problems in those with several risk factors: high cholesterol, elevated blood pressure, a family history of heart disease. "The question for these people is, How aggressive should their treatment be?" says Dr. Matthew Budoff, a cardiologist at UCLA. "Do we put them on a statin for the rest of their lives or tell them to just watch their diet? Knowing how much calcium they have could help inform this decision." --

By Alice Park

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