

# Heart Patients Have Options for Catheterization

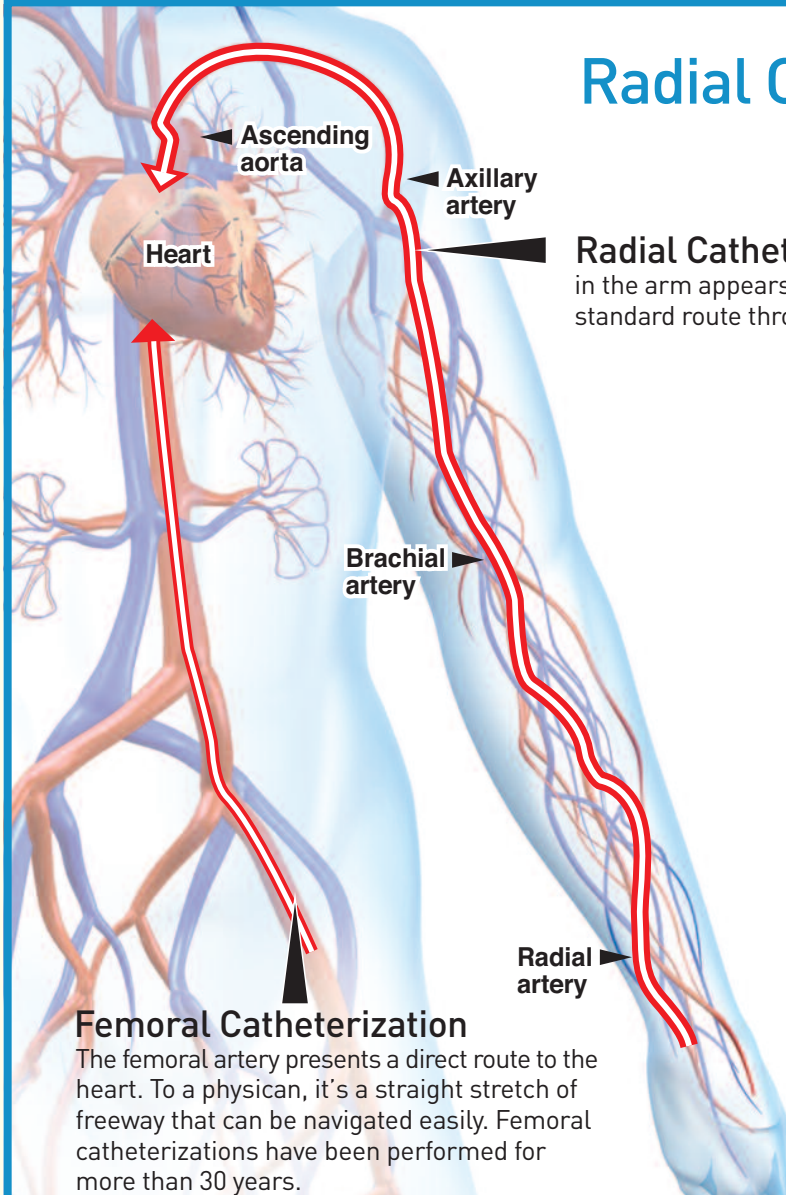
**A** patient undergoing a heart catheterization at St. Clair Hospital now has the option of having the procedure performed through the radial artery in the wrist instead of the traditional femoral artery in the groin.

While entry through the femoral artery is still the most common approach of the approximate 2,000 cardiac catheterizations performed each year at St. Clair Hospital, Cardiologist Jeffrey M. Friedel, M.D. says a so-called “radial cath” through the underside of the wrist offers two major advantages.

doing an angioplasty (in which a small balloon is inflated inside the artery to re-open blockages) and placing stents (small mesh tubes used to keep the re-opened arteries from collapsing).

Dr. Friedel, who has been doing radial catheters since 2001, says the radial method is of particular benefit to patients with orthopedic limitations, including severe back, leg and knee pain—people who, in general, can't lie flat for a prolonged period of time. It's also more comfortable for obese patients or patients with significant lung problems. And, he says, it is an excellent

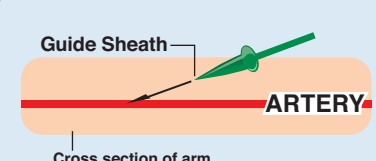
## Radial Catheterization: A Closer Look



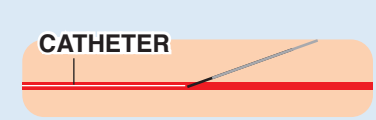
**Radial Catheterization** Inserting a catheter through the radial artery in the arm appears to be linked to a lower rate of bleeding complications than the standard route through the groin.

**Femoral Catheterization** The femoral artery presents a direct route to the heart. To a physician, it's a straight stretch of freeway that can be navigated easily. Femoral catheterizations have been performed for more than 30 years.


1. After a local anesthetic, the cardiologist places a small needle into the radial artery of the wrist. This needle is smaller than those used for most routine bloodwork.
2. A thin wire is then placed through the needle and into the artery, gaining “access” to the blood vessel.
3. Small tubes called catheters are then placed over the wire and up through the larger arteries of the arm and shoulder, and eventually into the aorta and heart arteries. Dye is then injected into the heart arteries and, if necessary, an angioplasty or stent procedure is performed.
4. At the conclusion of the procedure, all the equipment is removed and a “zip band” is applied to the wrist. The patient is able to sit up in a chair, as subsequent bedrest is not required.



**Guide Sheath**  
**ARTERY**  
Cross section of arm



**CATHETER**



“For a traditional heart cath through the femoral artery in the groin, a patient often requires prolonged bed rest of 4 to 6 hours following the procedure, especially if the patient undergoes angioplasty or stent placement,” Dr. Friedel says.

“With a radial cath, you can remove the tube, place a small bandage on the artery, secure it with a special, adjustable wristband, and the patient can literally walk off the table. There is no prolonged bed rest. This also holds true if the patient is on long-term blood thinners, including Coumadin. Unlike traditional catheterizations via the femoral artery, you do not have to stop Coumadin several days prior to the procedure.”

The other advantage is safety. Dr. Friedel says several studies that compared the two methods showed that a catheterization through the wrist offers up to a 75 percent reduction in bleeding risk. “The radial artery is smaller, and if you do have bleeding, it is much easier to control. The risk of blood vessel injury is also less compared to the femoral approach.”

Dr. Friedel says a catheterization through the femoral artery is still a very safe procedure and is the preferred method of most cardiologists. In fact, today about 99 percent of the 1 million-plus heart catheterizations done annually in the U.S. are performed through the femoral artery.

But, Dr. Friedel adds, that is due in large part to the fact that most invasive cardiologists were trained to do cardiac catheterizations through the femoral artery and have become very proficient at that method. There is a significant learning curve for performing a radial cath, and it is not yet a standard part of every training program.

What's more, the original catheterization equipment was larger. “Simply put, the tubes were too big to place into a small artery in the wrist,” Dr. Friedel explains. “As the procedure evolved, all of our equipment has gotten smaller and now the tubes we use are only several millimeters in diameter and can easily fit into most radial arteries.”

Dr. Friedel notes that, aside from the different access point into the body, femoral and radial catheters are very similar. “The majority of the procedure is the same: injecting dye into the coronary arteries (to detect blockages and other abnormalities),

alternative for patients with significant blockages in the larger arteries of the abdomen or lower legs.

Not every patient is a candidate for a radial cath, Dr. Friedel says. The main prerequisite is good circulation in the wrist arteries. A non-invasive test that takes seconds and is performed at bedside can determine if a patient's circulation is good enough for a radial cath.

Of the approximate 400 cardiac catheterizations he performs every year at St. Clair, Dr. Friedel says he does about 20 percent through the radial artery. His goal is to increase that rate to about 50 percent per year, approximately the same rate of radial catheters performed annually in Europe and Japan.

Other cardiologists performing radial catheters at St. Clair are Drs. Mark K. Greathouse, Adil Waheed, and John P. Girod.



### JEFFREY M. FRIEDEL, M.D.

Cardiologist Dr. Jeffrey Friedel is board-certified in Interventional Cardiology, Cardiovascular Disease, Nuclear Cardiology, Internal Medicine and Cardiac Computerized Tomography (CT) Angiography. At St. Clair Hospital, he is Co-Director, Cardiac Catheterization Laboratory; Director, Cardiac Rehabilitation Department; serves on the Medical Executive Committee; and is a founding member of the Hospital's renowned Door-To-Balloon team. Dr. Friedel earned his medical degree at Pennsylvania State University College of Medicine. He completed his internship and residency at Allegheny General Hospital and was awarded fellowships in Interventional Cardiology, Cardiology and Categorical Internal Medicine at Allegheny General Hospital.