

Heart News

Weatherhead PET Imaging Center has new Location

The Weatherhead PET Imaging Center has now re-located into its new home on the ground floor of the Hermann Pavilion of Memorial Hermann Hospital. This visibly located 6000 Sq. foot facility houses the latest Positron Corp. PET scanner and the new combined PET / CT scanner by GE. The support of Al and Celia Weatherhead of Cleveland Ohio, Lester Smith of Houston and many other generous donors made this facility possible and allows us to continue developing new techniques for cardiovascular imaging.

The support of philanthropist, Lester Smith, has a special role in the new Center for the development of a training facility for physicians to learn about PET imaging and prevention/reversal treatment of atherosclerotic cardiovascular disease. The Center includes a waiting area, private interview rooms and three additional consultation rooms where patients can review their own PET images with Dr. Gould as the basis for planning lifestyle changes and medical management.

The beautiful yet functional design can be attributed to architects Richard Palumbo and Steve Curry of Curry Boudreaux Architects. Special appreciation goes out to



Brenda Lyon, Assistant Vice President, Operations, Memorial Hermann Hospital who was instrumental in facilitating the project.

Patients scheduled for PET scans should enter the hospital through the Cullen Pavilion entrance, under the sky bridge. Once inside, continue straight through the main corridor past the Admissions offices into the Hermann Pavilion atrium. Proceed down the left side of the corridor to the escalators. Take the escalators down to the ground floor. The entrance to the Weatherhead PET Center is straight ahead.

Measuring The Pumping Function Of The Heart – The Ejection Fraction

Today's cardiac patient is faced with a barrage of information about disease processes, complicated tests, cholesterol levels, lifestyle changes, medications, bypass surgery, balloon dilation, etc. A basic understanding of heart pumping function provides a helpful perspective on this range of complex information. This review explains how the function of the main pumping chamber of the heart is measured and its significance for heart health.

During an eighty-year life span the heart beats approximately 3.4 billion times and pumps 61.1 million gallons of blood. This remarkable pump is a muscular sac that is divided into four chambers with four valves, all of which contract continuously in precise coordination without down time for maintenance or refurbishing. The left lower chamber, the left ventricle, is the primary pumping chamber that maintains blood pressure and blood flow to the body. The function of this chamber is measured as the ejection fraction, or the fraction of blood cont'd . . . on page 2





EF cont'd ...

in the chamber pumped out or ejected with each heartbeat. A normal ejection fraction (EF) is 50% or more. When approximately 23% of heart muscle is damaged and stops contracting, the EF falls below 50%. With progressive heart damage, the EF may fall further with inadequate blood flow pumped to the body by the damaged heart. This reduced cardiac output causes symptoms of fatigue, limited exercise capacity, difficulty breathing, ankle swelling, and shortened life span. A decreased EF is therefore a predictor of heart failure and shortened lifespan in cardiac patients.

Ejection Fraction can be measured by many methods. These include non-invasive tests such as the echocardiogram (ultrasound), the radionuclide test (MUGA scan), the stress perfusion test, MRI, and CT scanning. Ejection fraction is also usually measured by a left ventricular angiogram obtained during a cardiac cath. The ejection fraction is a dynamic measurement and can change under different conditions.

The ejection fraction is frequently temporarily reduced during a heart attack when the blood supply through the coronary arteries is suddenly partially blocked. Such injured heart muscle that fails to contract but is not "dead" is called "stunned" myocardium. If the blood supply is restored to the "stunned" heart muscle, it can recover and return to normal function. If the coronary artery blood supply to the heart muscle is slowly, chronically reduced to low levels by progressive narrowing of the coronary arteries, the heart muscle in the area of restricted flow also stops contracting but remains alive, not scarred, in a condition called "hibernating" myocardium. With both the suddenly stunned and the slowly hibernating heart muscle, the EF may be reduced but recover normal function if the coronary blood flow to the heart muscle is improved by balloon dilation or bypass surgery. PET imaging of the heart has been recognized as the most effective way to identify whether heart muscle is hibernating or scarred to determine if an intervention such as bypass surgery will be helpful or not.

Patients with impaired ejection fraction and severe narrowings of all three major coronary arteries are the one group of cardiac patients in whom coronary artery bypass surgery has been proven to improve long-term survival. However, this benefit of bypass surgery is limited if risk factors such as smoking, high cholesterol levels, high blood pressure and obesity are not controlled.

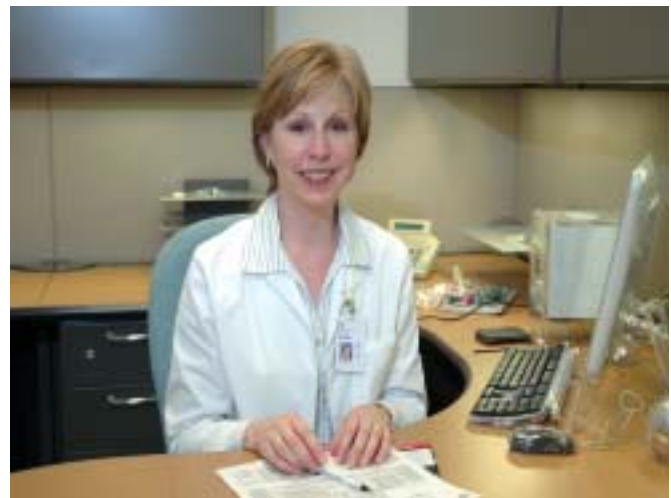
The most common reasons for long-term, permanently impaired ejection fraction are heart scarring due to a heart attack or primary weakening of the heart muscle without scarring called cardiomyopathy. For patients with heart scars due to past heart attacks, treatment is designed to prevent additional heart attacks and further damage. In

addition, effective treatment prevents the "stretching or thinning" of the scarred heart muscle that can occur slowly over months or years even with no further heart attacks. When scarred heart muscle stretches out, the heart dilates or enlarges to a bigger than normal size. Cardiac dilation impairs effective heart pumping, reduces the ejection fraction and leads to heart failure and death. Medications called ACE inhibitors such as Monopril, lisinopril, or ramipril reduce blood pressure and help unload the heart by reducing its workload. This "unloading" of the heart helps prevent the downhill cycle of dilation, impaired EF, further dilation, and still lower EF. Beta-blockers, particularly Coreg, have also been shown to help prevent or improve heart failure by retarding this progressive dilation of the heart. While optimal treatment can help prevent heart failure and death in patients who have already had a heart attack, vigorous early treatment will prevent or reverse atherosclerosis and thereby avoid the first heart attack with all the subsequent problems of a declining ejection fraction.

Congratulations to Andrea!! Welcome Karen!

October 30 2004 was the big day. Andrea Dvorachek R.N. gave birth to her first child, a baby girl, Hannah Grace Dvorachek. Mom and baby are doing well at home. After much thought, Andrea has decided to stay home and be a full time mother and will not be returning to work at the Weatherhead PET Imaging Center. Congratulations Andrea and best of luck!

As of April 11, our newest addition to the staff of the Weatherhead PET Imaging Center is Karen Alloway R.N. Karen is a native Houstonian and completed her bachelor's degree in Nursing at Texas Women's University. She is a welcome addition and brings to us many years of cardiac, emergency room, and surgical nursing experience. Karen will be scheduling and carrying out PET scans as well as seeing patients in the outpatient cardiovascular clinic on the sixth floor of the UT Professional Building. Welcome aboard Karen!



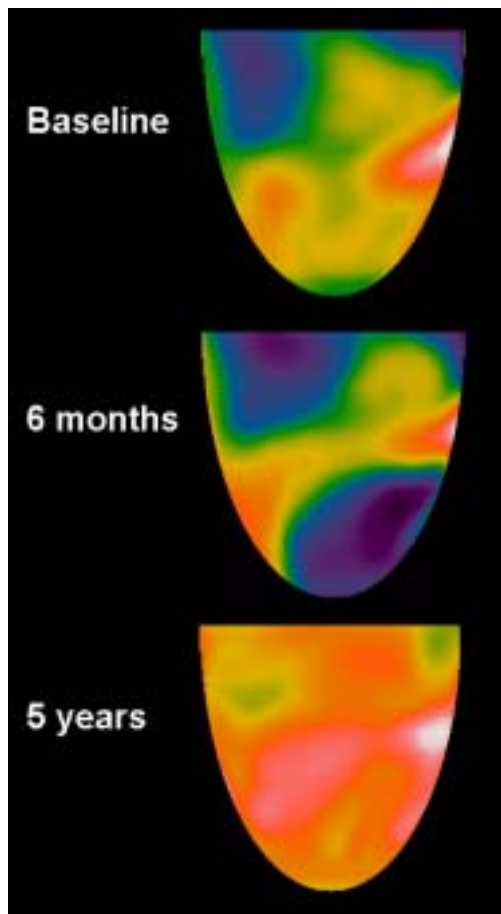


Heart Star

James Keffer had been fighting Coronary Heart disease for 22 years before he came to see Dr. Gould at the Weatherhead PET Imaging Center for Preventing and Reversing Coronary Artery Disease. This native Texan, now retired from the oil field equipment business, had his first bypass surgery in 1976 at the age of 55 and a second bypass surgery in 1991. Seven years later, an abnormal exercise test signified that his problems had returned and his grafts were closing down again, confirmed by an arteriogram.



Mr. Keffer saw 5 other cardiologists who told him there was nothing that could be done before a friend referred him to Dr. Gould. His first PET scan in 1998 revealed the scar from a heart attack that occurred during bypass surgery but also revealed that about 20% of his myocardium was “stunned” and had reversible ischemia from a blockage that had developed in one of his bypass grafts. At this time his ejection fraction was 25-30% that is half of the normal 50% to 70%. This impaired heart pumping function made him extremely fatigued and short of breath, a condition called heart failure. Due to his symptoms, Mr. Keffer was sent for an angioplasty and stent procedure to open his blocked bypass graft. Initially the procedure was successful but within 6 months, his symptoms had returned and a 2nd PET revealed that the stented graft had re-occluded. A second procedure was attempted but was unsuccessful. Therefore, Mr. Keffer was treated medically with blood thinners, diuretics, and medications to reduce the workload on his heart and to prevent heart failure. In a few months he began to feel better and his ejection fraction improved to 45%.



After each PET scan, Dr. Gould spent time with Mr. And Mrs. Keffer explaining the changes needed in their diet, lifestyle, and medications in order to stabilize the coronary disease. With active participation from his wife, Mr. Keffer had to change his philosophy about eating, he says, “I used to live to eat, now I eat to live”. He lost 30 lbs within 6 months and started a regular exercise regimen. Now at the age of 83, he continues to exercise 5 days per week for 45 minutes to an hour. He enjoys his new way of life and says, “ I have never felt better than now.”

A follow-up PET scan done last year showed marked improvement in blood flow through all areas of Mr. Keffer's heart, due most likely to extensive collateral development. A repeat MUGA scan showed improvement in his ejection fraction to a normal 59% despite his stent and bypass grafts being occluded at his last arteriogram. His diligence in improving his lifestyle to control his heart disease has earned him the title of HEART STAR.



Living Healthy

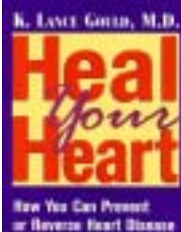
Tips for Sticking with a Daily Workout Routine



Physical activity develops or maintains cardiovascular fitness but people are highly variable in what physical activity they like or are willing to do and for how long. Some people need the support of a personal trainer, a workout buddy, a workout class, or a schedule in a gym. Others prefer to work out alone at home, where they are not distracted by other people and do not have to spend time traveling to a facility. Any activity is useful, such as walking, jogging, bicycling, rowing, repetitive lightweights, sports, swimming, calisthenics, yoga, or physical labor including vigorous housework, gardening, construction, virtually anything involving physical activity.

The three essential criteria for a successful program of physical activity are 1) to determine your preference for the type and time of activity. 2) Aim to do that activity for at least thirty to sixty minutes per day for five to six days per week, and 3) do something every day, even if the complete workout routine cannot be completed. When only ten minutes are available on some days, you should do an activity for those ten minutes. Do whatever you can, even if briefly, because regularity establishes the habit.

The best exercise activity choice is one that you will do, regularly. If you are working and busy, then you must choose something you can incorporate into your workday or get it done before you start your workday. If you are retired or have a less structured schedule, choose an activity that you enjoy and will continue. The essential point is to do some focused physical activity daily. For individuals with coronary heart disease or at high risk for it, the living habits relating to food and physical activity are basic conditions for feeling well and for reversing or preventing the progression of coronary atherosclerosis. They are essential for survival itself and optimal quality of life.



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Corner Pharmacy Recent News on Vitamin E

Several years ago, studies revealed that antioxidant vitamins (Vitamin E, C, and beta carotene) did not add any benefit to heart disease treatment so Dr. Gould stopped prescribing them. A new review of 19 clinical trials involving approximately 135,000 participants suggests that taking high doses (400 international units or more) of vitamin E may potentially increase overall mortality and should be avoided. Although these conclusions are not definitive, Dr. Gould recommends avoiding excessive Vitamin E supplements. Patients who wish to continue taking Vitamin E for a specific reason should review that decision with Dr. Gould or their regular physician.



Susan's Chicken Parmesan

Boneless skinless chicken breast cut in 4-6 oz pieces.
Fat-free mayonnaise.
Seasoned Italian breadcrumbs.
1 teaspoon Parmesan cheese.
Low fat mozzarella cheese (optional)
Sliced fresh tomato (optional)

Cut chicken breast into 4-6 oz pieces.
Brush each breast with a light coating of fat free mayonnaise.
Mix enough seasoned breadcrumbs with a tsp. of Parmesan cheese and lightly coat the chicken breast.
Place the breast on a flat cooking sheet sprayed with a fat free cooking spray. Bake at 400 degrees for about 15 to 20 minutes.
Top with grated low fat Mozzarella cheese or a slice of fresh tomato. If desired.

This dish is great served with fresh zucchini cooked with Italian seasoned tomatoes

PET News is published twice annually for the patients and friends of the Weatherhead PET Imaging Center for the Prevention and Reversal of Heart Disease. We welcome your story ideas, comments, and suggestions.

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