

In the Spring of 2010, the CENTURY PET Scanner campaign to raise funds for a new PET scanner in the Weatherhead Center, was launched and has now been successfully completed. The new Positron camera has been installed, is currently being calibrated and will soon

be ready for patients. Due to the positive response of numerous donors and the generosity of past donors, we have been able to make scientific advancements that are changing the practice of cardiology.

In this issue of the PET News, we would like to thank all of our patients and donors for achieving the campaign goals and for the new PET scanner. A special note of appreciation goes out to the campaign chairman, Jerry Deutser for all his hard work making the campaign successful. The summary below explains how your generous donations are furthering scientific development of heart disease imaging and treatment.

The addition of 2 faculty members in the last year, Nils Johnson M.D. and Tung Nguyen B.S., has accelerated our scientific development. See page 3 for introductory information on these two creative new faculty members.

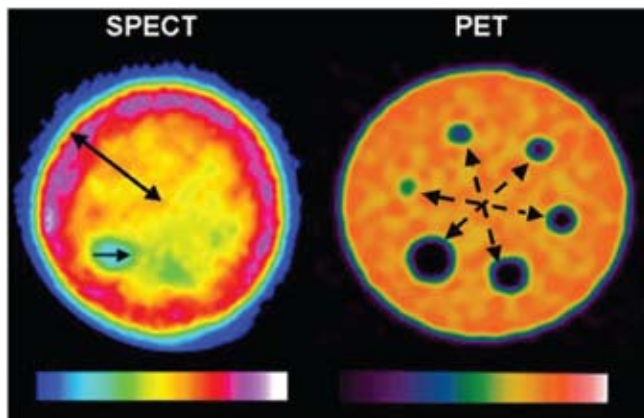
To explain the significance of our new developments, we have to give some background information on how current widespread nuclear images of the heart are used. Every day in Cardiology practice, decisions are made sending patients for coronary arteriogram and stents or to bypass surgery based on blurred, grainy, fuzzy-looking, low resolution images of the heart muscle acquired with conventional nuclear scanners called SPECT imaging. Although standard nuclear perfusion imaging is a step above the plain ECG exercise test, the data obtained from these SPECT images is limited with frequent diagnostic errors due to their suboptimal technology. Despite these limitations, SPECT imaging remains standard practice due to its availability and reimbursement by the insurance industry.

Over the past 20 years, numerous scientific publications have demonstrated the superiority of positron emission tomography (PET) for identifying early pre-clinical heart

disease and defining which patients should or should not have invasive procedures. Comparing the information obtained with PET to the conventional nuclear scanners is like comparing an old grainy blurred photograph from the 1800s to a new enhanced HD digital image.

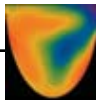
The figure below illustrates this comparison in a test model showing different levels of abnormalities like those in a heart with blocked arteries. The red areas in the images show high or normal activity corresponding to normal blood flow in the heart muscle. The circular blue or green areas show different sizes of abnormal low activity areas corresponding to blocked coronary arteries with low blood flow. The traditional SPECT image shows lumpy, non-uniform activity and only the largest abnormal area with fuzzy distorted edges. The PET scan is much better showing uniform activity around the circular, sharply circumscribed, definite abnormal areas down to the smallest sizes.

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Lumpy irregular body of activity ← →
Only largest abnormality seen, distorted →
Even the smallest abnormality seen sharply ← - - →

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Over the past 5 years, enhancements in PET scanners have been made to measure the volume or absolute coronary blood flow in cubic centimeters per minute per gram of heart muscle (cc/min/gm). This volumetric flow measurement is analogous to gallons of gas per minute per mile for cars or quarts of milk per minute produced per milk cow. For the heart, coronary flow in cc/min/gm that is reduced too low by coronary artery narrowing causes chest pain, ECG abnormalities or a heart attack. Therefore, measuring volumetric coronary blood flow in cc/min/gm by non-invasive PET is the best way of determining who needs an arteriogram and stent or bypass surgery, much better than a visual estimate of percent stenosis.

Since measuring volumetric coronary blood flow is complex and requires extensive technical expertise that few cardiologists have, the technical team of the PET Center is developing new automated software and protocols for routine widespread clinical measurement of volumetric coronary flow. Your donations are contributing substantially to this break through in management of coronary heart disease that keeps the Weatherhead PET Center For Preventing and Reversing Atherosclerosis the world's leader for the benefit of our patients.

The first part of this automation is the processing done by the technologist immediately after the scan is completed producing pictures for interpretation. The second part is automation or compilation of multiple sets of images and flow data into a single colored map of the heart with the arteries overlaid which accurately shows each area of the heart and its blood flow capacity. This single composite image or heart map indicates how much of the heart is ischemic, or starved for oxygen and precisely when a patient needs to go for an invasive procedure or not. All the coronary flow measurements in the heart map objectively quantify the PET images that Dr. Gould learned to interpret visually intuitively based on 35 years of experience that is compiled and simplified by our technology into a heart map that others with less experience can interpret for clinical decisions.

In the last year we have published 6 additional papers in major cardiology journals demonstrating and validating the new developments. Other cardiologists are now recognizing the value of PET and starting to refer patients to help with complex patient management decisions, as well as setting up their own PET scanners.

In the current political climate where healthcare dollars are shrinking, PET is the optimal tool to improve the efficiency of cardiac care. Decisions to do costly invasive angiograms, stents and surgery can be based on objective accurate PET data rather than being based on financial incentives and inaccurate testing.

We know that the current assembly line to invasive procedures and surgery does not prevent heart attacks or deaths from cardiovascular disease. There is a better, more efficient way to manage heart disease; it involves accurate diagnostic imaging, invasive procedures only when absolutely necessary based on coronary flow measurements, appropriate medications, active, healthy lifestyle, and lifelong vigilance. Thanks to your continued support, this revolution in cardiac care is happening to benefit everyone.

New study about HDL cholesterol Treatment

The National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health has stopped a clinical trial studying a blood lipid treatment 18 months earlier than planned. The trial found that adding high dose, extended-release niacin to statin treatment in people with heart and vascular disease did not reduce the risk of cardiovascular events, including heart attacks and stroke. This report has prompted lots of calls from patients wondering whether they should continue taking Niaspan.

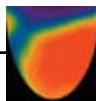
Before taking any action based on this study alone, we always take a careful look at how the study was conducted and how it compares to other studies looking at the same issue. The results of this study are CONTRARY to several other large randomized trials that show a substantial benefit from raising HDL cholesterol. The data on the recent Niaspan trial has not been published in the medical journals yet so that it cannot be adequately evaluated. However, several points stand out as follows:

1. The study showed no harm, but was stopped due to a reported lack of benefit without specific data provided until this fall.

2. The patients selected had weighted average baseline LDL of 74 and HDL of 34. The HDL increased by 20% to approximately 41 with Niaspan. Thus, the baseline lipids were not as severe as we commonly see in patients with higher LDL, higher triglycerides and lower HDL. The study failed to achieve our HDL target of 45 to 50mg/dl and also failed to achieve the lipid and weight goals of our program.

3. The randomized, well done, definitive FATS and HATS trials of triple therapy including niacin showed an 80% to 90% decrease in coronary events, the greatest benefit of any treatment ever reported for coronary artery

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disease and nearly double the benefit from statins alone.

4. Niaspan also changes the LDL and HDL particle size to the larger fluffier cholesterol particles such that the larger LDL particles are less atherogenic and the larger HDL particle size provides more effective reverse cholesterol transport out of atheroma thereby lowering atheromatous risk.

5. No drug therapy is a substitute for healthy food, lean body weight and exercise. The healthy living combined with drug treatment to correct all lipid abnormalities is more effective than either approach alone, as shown in

the randomized HATS and FATS trial as well as the non-randomized trial at the University of Texas.

We are not advising our patient to stop Niaspan as a result of these news reports. A large body of scientific data indicates that Niaspan combined with other medications is beneficial, not contravened by the recent news reports. Combined medications and healthy living as outlined above provide the best outcomes as we emphasize in our program. Further analysis of the study will be conducted when it is available.

2 New Cardiology Faculty Members Added



Nils Johnson, MD

Nils Johnson MD is now an Assistant Professor in Cardiology. Although only recently full time faculty at the University of Texas Medical School, he has worked closely with Dr. Gould for the past 13 years as he completed his education. In 1998, as an undergraduate in physics and computer science in Vancouver, Canada, Dr. Johnson met Dr. Gould and completed several “programming projects” that were the building blocks of most of our current scientific papers. Born in Canada, but raised in Houston and Tulsa, Dr. Johnson realized that these summer projects and his relationship with Dr. Gould were shaping his career. He began medical school at Columbia University in New York but kept in touch with the PET center and continued to work on projects under Dr. Gould’s direction. Dr. Gould convinced him to pursue internal medicine and cardiology, rather than radiology, as he had planned.

In the summer of 2004 he moved to Northwestern University in Chicago to start internal medicine residency, and a special 7-year cardiology fellowship including interventional cardiology and research. Along the way, he also completed a Master’s Degree in Epidemiology and Biostatistics. His last year of this 7-year fellowship was extended to the Weatherhead PET Center finishing several

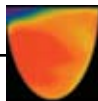
research projects and seeing patients with Dr. Gould, now becoming full time faculty.

Dr. Johnson’s exceptional technical and medical education with his shared philosophy about preventing and reversing heart disease make him an ideal partner for the Weatherhead PET imaging center. We welcome him, his wife Allison, and their two daughters, Sophia (3) and Isabel (1).



Tung Nguyen

Tung Nguyen joined the Weatherhead PET Imaging Center in December 2010 as an imaging specialist and software developer. Tung was born in Vietnam and came to the United States in 1975 during the fall of South Vietnam. He earned a degree in chemical engineering at Virginia Tech University followed by over 30 years in the oil and gas industry developing seismic and geophysical software. With lifelong interest in medical applications, Tung worked at Positron Corporation developing imaging software applications for Positron PET cameras. “Although the two fields are quite different, the Image/data processing are similar,” says Nguyen. At the Weatherhead PET Imaging Center, Tung applies his software development experience and expertise to the most innovative, advanced PET image processing in the field. He has added a tremendous technical boost to our cardiac PET team.



Moderate aerobic exercise may delay age-related memory decline

There is yet another good reason to start a regular physical exercise program. According to a study published earlier this year in the Proceedings of the National Academy of Sciences, “one year of moderate physical exercise can increase the size of the brain’s hippocampus in adults aged 55 and more, leading to an improvement in spatial memory.”

In fact, the study showed that “walking three times a week may improve memory in older adults and help prevent mental decline as people age,” “The study of adults ages 55 and older found a two percent expansion of the hippocampus, the brain’s memory processor that can shrink during middle age, in those who walked 40 minutes, three times a week, for a year.”

“To complete the study, the team recruited 120 older people who didn’t exercise regularly. Half were randomly assigned to an aerobic exercise program, walking around a track three days a week for 40 minutes per session,” while “the other half embarked on a stretching-and-weights program.”

MRI scans revealed that “after 12 months, the group that walked showed an average 2% growth in the hippocampus compared with when they began, while the control groups suffered a more than 1% shrinkage in the same region compared with when the study started.” Those who showed the greatest improvements in memory also showed the greatest increases in hippocampal volume.”

Hidden Calories at the Salad Bar

Many times we visit the salad bar with great intentions of having a “healthy” meal and reducing our calorie intake to lose weight. However, we end up leaving the salad bar balancing a huge plate piled 4-6 inches tall with some of every ingredient offered. These meals can end up containing more calories than other less “healthy” choices.

Remember, the primary ingredient of a good salad is an abundance of lettuce and raw vegetables, which contain lots of water, fiber and vitamins. Having a low fat protein source such as tuna, chicken strips or LF cheese is important to help suppress the appetite for longer periods of time. What is added on top of the main ingredients is where hidden calories can add up and make weight loss difficult.



Below are common items at the salad bar that can add too many calories and sabotage your good intentions. Be careful to limit these, otherwise your good intentions will be all for nothing. There are lots of low fat alternatives that taste just as good.

Item	amount	fat gms	calories
Ranch Salad Dressing	1/4 cup	30	292
olives	10 green	4	40
cheese	1/4 c cheddar	11	133
crackers	5 square	1.5	63
sunflower seeds	2 tbsp.	9	100
eggs	1 large	5	78
Crispy chicken strips	3	17	360
cubes of ham	4 cubes	12	200
Total		89.5	1266

Alternatives	amount	fat gms	calories
LF cheese	1/4 cup	2.3	57
LF Ranch dressing	1/4 cup	7.5	118
egg whites	whole	0	16
grilled chik strips	3	3	140
cubes of turkey	4 cubes	1	44
cucumbers	1 cup sliced	0	14
broccoli	1 cup	0	31
lettuce	2 cups	0.1	10
Total		13.9	430



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PET News is published 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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