HEART DISEASE AND STROKE PREVENTION PROGRAM


from Cenegenics® Medical Institute... The Global Leader in a proactive medical approach to optimized health
Next Generation Medicine: Stop Heart Disease

Preventing disease is what we do. Now we’re targeting it head on with a totally new level of medicine—and a focus on heart attacks and stroke.

Since its 1997 inception, Cenegenics has forged a paradigm shift in medicine, developing a proactive medical approach for optimized health hailed as “next generation medicine” and garnering worldwide media attention.

Our Heart Disease & Stroke Prevention Program is grounded on that same forward thinking. This sophisticated, proactive program offers the most advanced technology and comprehensive laboratory screening to reduce your risks.

- Critical for your future health—if you have a family history of heart disease or stroke
- Avoid future events—if you’ve had cardiovascular disease or had bypass surgery, heart attack or stroke
- Life saving—for everyone regardless of age, from 13 to 70 or older
- Innovative program designed by four experts in the field—cardiovascular surgeon and three cardiologists

Are you living with a false sense of security, relying on the limits of conventional testing? The Heart Disease & Stroke Prevention Program takes you beyond that to 21st century medicine: genetic screening, advanced lipid panels, laboratory markers for plaque formation and assessments for inflammatory markers—a cause of cardiovascular disease leading to tissue damage, organ destruction, shift in the cellular matrix as well as potential blood clots and heart attacks.

Call today to learn more about preventing heart disease.

480.454.2370

Can you prevent premature death, a heart attack or stroke? Absolutely. But first you have to recognize the warning signs.

Real Facts

- 2,200 Americans die of cardiovascular disease daily: 1 death every 39 seconds.
- Cardiovascular disease claims more lives every year than all cancers, diabetes, Alzheimer’s or accidents.

Taken from the AHA’s 2011 Heart Disease/Stroke update
Why It Works

The Heart Disease & Stroke Prevention Program sets a new benchmark for preventive health: its evaluation components are more significant, more specific and more accurate in assessing your cardiac health picture.

What makes the program unique? We've partnered with three cardio-diagnostic leaders to design the most advanced program—combining the best aspects of the nation’s top two laboratories who screen for cardiovascular disease. No other practice does that.

1. **PANASONIC HEALTHCARE GROUP |** We are the first private company to use Panasonic’s FDA-cleared, highly precise CardioHealth Station for prevention vs. disease treatment. This noninvasive ultrasound system performs an automated measurement to assesses intima-media thickness (IMT), identifying your risk for having or developing plaque burden formation in arteries.

2. **BERKELEY HEARTLAB |** Will you be at risk for coronary disease by age 40, 50 or 60? Genetic testing—such as KIF6, ApoE and 9p21—identifies your risk level for coronary heart disease, heart attack or stroke. Advanced lipid panels—using proprietary testing technology to determine lipoprotein particle size and density—reveal whether you currently have disease.

3. **CLEVELAND HEARTLAB™ |** Proprietary testing with novel biomarker technologies provides in-depth blood analysis and urine testing. Markers such as myeloperoxidase, high-sensitivity C-reactive protein, microalbumin/creatinine ratio (urinary) and F2-isoprostane/creatinine ratio reveal if you’re prone to inflammation and at risk for developing heart attack and stroke.

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<th>CIMT</th>
<th>Advanced Lipid Panel</th>
<th>Genetic Markers</th>
<th>Markers of Inflammation</th>
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<tr>
<td>Cenegenics</td>
<td>Yes</td>
<td>Yes; 12 Areas Assessed</td>
<td>Yes; Minimum of 3: KIF 6, ApoE, 9p21</td>
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<td>No; Only 4 Areas Assessed</td>
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Step 1 For Better Heart Health

You can beat the statistics for heart disease. It starts by picking up the phone and scheduling your Heart Disease & Stroke Prevention Program evaluation day.

**BLOOD WORK |** After scheduling your evaluation day, our phlebotomy network will contact you to make an appointment for our sophisticated blood and urinary testing.

- A phlebotomist will visit you at your home or office—or you may have blood drawn at one of our facilities nationwide, if you live in the area.
- Blood testing requires a 12-hour fast and is performed Mondays through Thursdays.
- The phlebotomist will send your blood and urine sample to our labs for analysis.

**EVALUATION DAY |** Go to any Cenegenics center nationwide for the initial visit, which lasts about 1.5 hours.

- Several diagnostics will be performed, from the noninvasive ultrasound system to measure intima media thickness (IMT) to basic evaluations and cardiovascular screening.
- Sit down for a face-to-face with your expert Cenegenics physician to go over all your test results and discuss a yearlong plan of action.

From there, you’ll have periodic evaluations, open access to your Cenegenics physician and our renowned five-star patient service. You’ll also keep your current cardiologist/physician who is treating disease. We will work with you, taking a different perspective and augmenting your health approach.

Prevent heart disease. Call for your evaluation now.

480.454.2370
Introducing the Vendys® from Endothelix™

Cenegenics now uses the Vendys machine to measure the hyperemic response. Vendys (Vascular Endothelial Dysfunction) is the only FDA cleared, fully automated, operator independent, non-invasive, easy to use, office based device for measurement of vascular reactivity and endothelial function.

WHAT IS ENDOTHELIAL FUNCTION? “Endothelial Function” is a misnomer! The vascular endothelial cells have multiple functions, which are:

1. Regulates fluid and molecule traffic between blood and tissues
2. Serves as an anti-coagulant (anti-clotting) surface
3. Contributes to vascular homeostasis and repair
4. Plays a central role in angiogenesis and tissue wound healing
5. Plays a vital role in vascular tone and blood flow regulation*  

*Assessing this last function is the most practical way of measuring endothelial function.

Endothelial function is the most important function of the vascular system. The most well known and visible function of endothelial cells is the ability to increase blood supply by dialating the artery when needed. Vascular resistance decreases to bring more blood flow to tissues as the arterial lumen diameter increases. This ability is also referred to as “vascular reactivity,” which denotes the competency of the vascular system to respond quickly and deliver more blood to organs when needed. Good vascular reactivity is seen where the arteries are fully dialated to allow high volume blood flow, versus poor vascular reactivity where the arteries do not dialate enough to increase blood flow.

Vascular reactivity is the most important element of vascular function, therefore the phrases “impaired vascular reactivity,” “vascular dysfunction,” and “endothelial dysfunction” may be used interchangeably.

WHAT CAUSES ENDOTHELIAL DYSFUNCTION?

Negatively affected by:
• Smoking  
• Diabetes  
• High blood pressure  
• High Cholesterol  
• Weight gain  
• Mental stress  
• Excessive inflammation  

Positively affected by:
• Exercise  
• Weight loss  
• Stress reduction  
• Cholesterol-lowering drugs
HOW IS ENDOTHELIAL FUNCTION MEASURED? In clinical cardiology research laboratories endothelial function was first measured by injecting acetylcholine via catheter into the coronary artery and monitoring the response by X-Ray imaging, specifically measuring the diameter change of the artery. If the coronary artery diameter increases it indicates a healthy endothelial function. However if the coronary artery diameter decreases, it is a clear indication of endothelial dysfunction and sign of atherosclerosis. Obviously this technique is very invasive and requires hospitalization. It is also very expensive and is not justified for patients who are asymptomatic or currently healthy. In 1992 scientists developed a research technique for assessing endothelial dysfunction using high resolution ultrasound imaging of the brachial artery.

This technique requires a five minute occlusion and release of the brachial artery blood flow using a blood pressure cuff, also called a reactive hyperemia procedure and manually measuring the diameter of the brachial artery using a high frequency ultrasonic imaging probe. If the brachial artery diameter increases less than 5% it indicates endothelial dysfunction and a sign of cardiovascular disease. However, if the brachial artery diameter increases more than 10% it is a clear indication of healthy endothelial function.

Although this discovery was a major step forward and is a useful tool for research laboratories, it lacks feasibility for use in clinical practice in doctors’ offices mainly because it requires it requires high resolution ultrasound imaging and an experienced sonographer. Also this method is operator dependent and is sensitive to the arm’s position, leading to inconsistent results and unacceptable variations.

Reactive Hyperemia (2) What is reactive hyperemia? And how do we measure vascular reactivity and endothelial function? Using an arm cuff reactive hyperemia procedure. Reactive hyperemia is the transient increase of blood flow that occurs following a brief period of ischemia, or blood flow occlusion.

In a classic reactive hyperemia test an arm cuff occludes the brachial artery and stops blood flow for five minutes resulting in a tissue hypoxia or anaerobic metabolism.

During cuff inflation, blood flow stops and tissue becomes ischemic, leading to an accumulation of lactates and other chemicals cause the vessels in this area that to dilate.

Blood flow increases 2 to 3 times after releasing the cuff. This reactive hyperemia response is largely dependent on endothelial cells. The healthier the artery, the larger the reactive hyperemic response.
HOW DOES IT WORK? Vendys uses smart temperature sensors at the fingertip and algorythms to measure vascular reactivity. It is non-invasive, inexpensive, and easy to use. Similar to the ultrasound based measurement, Vendys uses a five minute arm cuff occlusion reactive hyperemia procedure. The Vendys test begins with an automated blood pressure measurement followed by a tightening of the arm cuff on the right arm. During the cuff occlusion period, finger tip temperature in the right hand falls due to the absence of warm circulating blood. Once the cuff is released, blood flow rushes into the forearm and hand, causing a temperature rebound in the finger tip, which is directly proportional to the vascular reactivity. Because blood is warm, the more blood flow, the higher the temperature at the finger tip. The higher the temperature rebound, the better the vascular function.

WHAT ARE THE ADVANTAGES OF USING THIS DEVICE? No need for an expensive high resolution ultrasound imaging technology or an experienced sonographer. Vendys testing can be done in any doctor’s office or point of care clinic.

WHICH DISEASES ALL SHARE THE COMMON RISK FACTOR OF ENDOTHELIAL DYSFUNCTION?

**Brain:**
- Stroke
- Dementia
- Macular Degeneration
- Alzheimer’s Disease

**Endocrine System:**
- Diabetes

**Feet:**
- Diabetic Foot

**Hands**
- Raynaud’s Disease

**Heart:**
- Heart Attack
- Heart Failure
- Angina
- Pulmonary Hypertension

**Urinary System:**
- Renal Failure

**Liver**
- Portal Hypertension

**Male Genitals:**
- Erectile Dysfunction

THIS LIST OF DISEASES IS NOT EXHAUSTIVE. TO FIND OUT MORE VISIT OUR WEBSITE.