

# New Options for Wellness news



Stanford Linear Accelerator Center

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### Wellness Activities

- **Volley Ball:** Nicolas Berger sets up the volleyball net on front lawn Tues. & Wed. 12-1:00 PM & Thurs. 5-6:00 PM. Call Nicolas Ext.3434 for more info.
- **Healthy Back Cross Training:** Taught by HIP instructor on site. 3/30-6/3/05 Wed. & Fri. 11-11:55 AM in Bldg. 27. STAP fund: Yes
- **Smoking Cessation:** A free consult by P. L. Sachs, M.D. Questions? Dr. Gherman Ext. 4382.
- **Body Sculpting & Step Aerobics:** Taught by Ziba Mahdavi, this stretching class is offered on Tues. & Thurs. 12-1PM in Bldg. 27. Questions? Please call Ext.4458 or 2281.
- **Pilates:** Taught by Kerry Spear & Mary O'Connell Mon. & Wed. 5:15-6:15PM in Bldg. 27 at SLAC. Classes run 3/28 – 6/15/05 Register at: <http://hip.stanford.edu>
- **Yoga:** Taught by Kim Tanzer Friday 12-1:00PM in Bldg. 27 at SLAC. Classes 4/17 – 6/17/05. <http://hip.stanford.edu>
- **Ballet/Lyrical Jazz:** Taught by Vicky Brey, Friday 5:15-6:30 PM in Bldg. 27. Questions? [olga@SLAC.Stanford.EDU](mailto:olga@SLAC.Stanford.EDU)
- **Aerobics:** Taught by Cecilia Glower, Mon. & Wed. 12-1PM, Tues. & Thurs. 5-6 PM in Bldg. 27. Questions? Michelle Steger @ x.3011 or Bette Ferandin @ x 2601.
- **Stress Counseling:** Rosan Gomperts & Kevin Carr, Stanford Help Center counselors at SLAC on Tues. 10 -4 PM, Thurs. 8-11AM in the Medical Dept. Call Ext.2281 for an apt. at SLAC, or (650) 723-4577 for an apt. at the Stanford campus office.
- **Massage:** Mer Baldoza, CMT, is at SLAC medical Tues., Wed, Thurs., and Fri., 3:30 PM. Call Ext. 2009 to schedule an appointment.
- **Gym:** weights & equipment in NW corner of Bldg. 34. Call Diane Jenkins to join or for more info Ext. 2215.
- **Soccer:** On the front lawn Mon. & Thurs. at noon Call Rafael Miranda x 4471 or Tu Ly x 4442.

### Berkeley Labs Heart Testing

<http://www.bhline.com/>

Heart disease is the leading cause of death in the United States. Coronary artery disease (CAD) is the most common form of heart disease.



Like all the cells and muscles in the body, the heart muscle itself needs oxygen. With the rest of the body that life-

sustaining oxygen is carried to the individual cells of the heart and the arteries. These are called the coronary arteries. If the coronary arteries are blocked and unable to do their job, then the heart is left without oxygen and unable to do its job. Depriving the heart of oxygen for even a brief period of time will result in the death of some of the heart muscle—otherwise known as a heart attack.



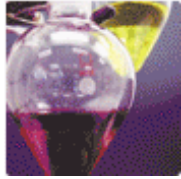
### Surprising,

about 80% of individuals who are destined to have heart attacks have the same blood cholesterol values as those who do not develop CAD. Only 50% of cases of coronary artery disease are associated with high cholesterol or any of six additional classic risk factors: advanced age, male gender, positive family history, high blood pressure, diabetes, and smoking. In addition, treatments that improve these disorders may fail to prevent the progression of CAD, as shown by X ray visualization of the arteries (coronary angiography) or prevent the occurrence of heart attacks and other CAD related cardiac events.



### Who needs a Berkeley?

**If you have two or more of the following, then you should consider having Berkeley Heart Lab done.**



- \* Have heart disease or have had a heart attack ( this counts for two)
- \* Family history of heart disease or heart attack before the age of 50
- \* Total cholesterol > 200 mg/dL
- \* LDL cholesterol >130 mg/dL ( the bad cholesterol) or, if you have had a heart attack, LDL cholesterol > 100 mg/dL
- \* Triglycerides > 140 mg /dL
- \* HDL cholesterol < 40 mg/dL (the good cholesterol)
- \* Systolic blood pressure (the top number) > 140 mmHg
- \* Diastolic blood pressure (the bottom number) > 90 mmHg
- \* Diabetes ( this counts for two!)
- \* Obesity
- \* Cigarette smoker

Introducing: The Berkeley Heart Lab Exercise as Steps Program for A Linear and Healthier You!

What is it?

Your recommended Berkeley Heart Lab (BHL) Exercise as Steps program is designed exclusively for you. The number of recommended daily steps is based on your body mass index (BMI), age, gender, and your recent BHL advanced cardiovascular tests results.

Your target number of Exercise as Steps is to be used in combination with your BHL dietary recommendation.

Benefits of the BHL Exercise as Steps program :

- \* Walking is easy on the body and reduces the risk of injury (pulled muscles, sprained ankles, joint pain, etc.)
- \* People who stick to consistent, moderate-intensity exercise, like walking, are more likely to lose weight than those who do occasional high-intensity workouts.

\* Walking is an effective way to lower blood pressure, raise HDL "good" cholesterol, decrease triglycerides, and reduce both waist size and BMI all positive developments toward reducing overall risk of cardiovascular disease.

\* The BHL Exercise as Steps program for achieving moderate-intensity physical activity is consistent with guidelines from the U.S. General, the CDC, and the American College of Sports Medicine (ACSM).

Beyond the basics: Cholesterol subclasses

We now know that cholesterol can be broken down beyond just LDL and HDL. Within both LDL and HDL, there exist particles that vary in their characteristics and therefore in their risk factors for CAD.



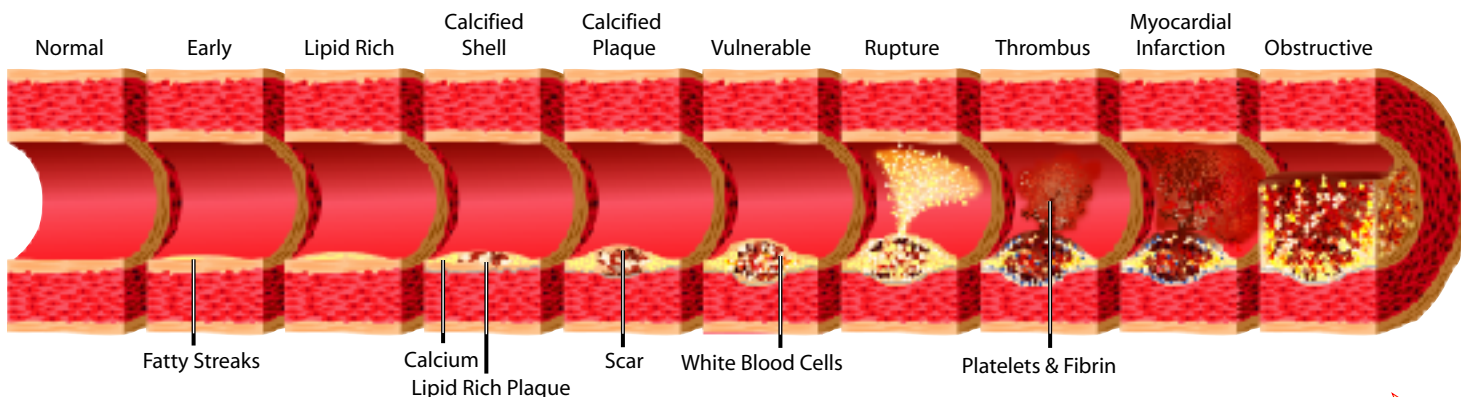
This more comprehensive approach can point to treatment that differs from traditional therapy and is more effective in slowing, halting, or reversing the progression of CAD.

Berkeley Heart Lab (BHL) is the only source in the country for quantitative testing of lipid subfractionation by gradient gel electrophoresis (GGE) which is correlated with analytical ultra-centrifugation (ANUC), considered by clinical researchers as the "Gold Standard". Doctors can now go beyond and utilize advanced cardiovascular diagnostics to detect and measure inherited traits associated with increased risk for cardiovascular disease.

New Options for Wellness (NOW) News is published bimonthly by the SLAC Medical Department to give you recent medical and wellness information, health-related seminars, workshops, and events. We continuously strive to improve and deliver pertinent programs to the SLAC community. *Your feedback and suggestions on our newsletter are welcome at MS 25 or email [petrison@slac.stanford.edu](mailto:petrison@slac.stanford.edu).* Written and edited: M. Gherman M.D, MPH; L.Petrison PA-C; S. Aguilar M.A.; V. Valencia M.A.

# Berkeley HeartLab Advanced Cardiovascular Tests

Berkeley HeartLab provides a comprehensive analysis of the many factors that contribute to cardiovascular disease (CVD). These include proprietary HDL and LDL tests; HDL-S<sub>10</sub>GGE™ and LDL-S<sub>3</sub>GGE™.



Small LDL trait, high Apo B, high Lp(a), high Homocysteine, high hsCRP, high Triglycerides, and/or low HDL2b

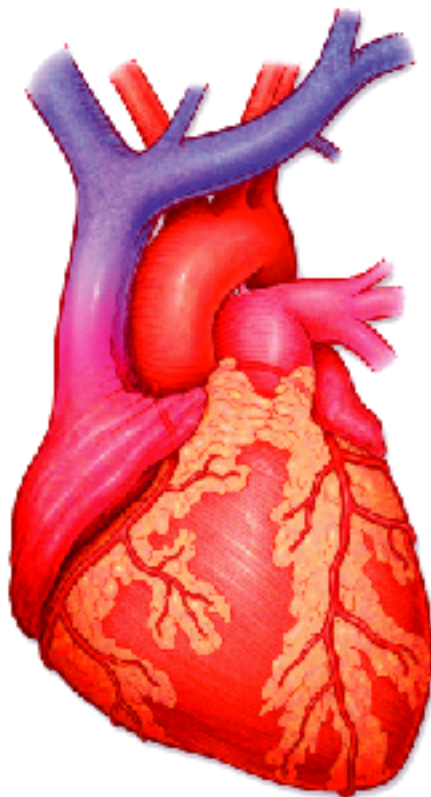
High HDL2b

## LDL -S<sub>3</sub>GGE™ (LDL particle size and distribution):

Measures LDL size and classification (i.e., "small LDL trait" vs. "large LDL trait"). Small LDL trait reflects the presence of predominantly small, dense LDL particles that increase coronary artery disease risk threefold, even with "normal" LDL cholesterol concentration. The primary gene responsible for this inherited trait is linked to chromosome #19.

The small LDL trait typically consists of more than 22% of LDL in the IIIa and IIIb subclasses. The LDL IVb region holds the smallest of the LDL particles. Elevated values have been reported to be an additional independent marker for increased arteriographic progression risk.

**HDL S<sub>10</sub>GGE™ subclassification:** Measures HDL subclass distribution in five HDL regions. HDL2b best reflects the efficacy of reverse cholesterol transport. Low levels of HDL2b increase cardiovascular disease risk.



**Apolipoprotein A-1:** Apo A-1 is one of the major apoproteins attached to the HDL particle and may be a better predictor of CVD risk than total HDL cholesterol.

**Apolipoprotein B:** Apo B-100 is the only apoprotein attached to LDL. Measurement may give a more accurate indication of the relative number of LDL particles compared to a simple LDL cholesterol measurement.

**Apo E Isoforms:** Apo E Isoforms indicate the inheritance of either the normal E3/E3 pattern, or the more unusual E2 or E4 forms. Individuals who are E2/2 are prone to develop Type III hyperlipidemia under the necessary environment stimulus. Type E2/2 patients may benefit from a higher, healthy fat diet. Individuals with the E4 allele may have elevated plasma LDL cholesterol (LDL-C). These individuals may be particularly responsive to a low fat diet.



# Berkeley HeartLab Advanced Cardiovascular Tests

**C-Reactive Protein-hs:** CRP is one of a number of "acute phase" proteins that increase in response to some inflammatory stimuli. In large epidemiologic studies, elevated levels of CRP have been shown to be a strong independent predictor of CVD risk. This is thought to relate to the fact that artery disease represents an inflammatory response to abnormal lipids.

**Fibrinogen:** Fibrinogen is a plasma protein that can be transformed by thrombin into a blood clot. Elevated fibrinogen levels contribute to atherosclerosis. The combination of elevated fibrinogen with other CVD risk factors substantially increases disease potential.

**Folate:** The folate assay can determine whether hyperhomocysteinemia, an emerging CHD risk factor, is due in part to low plasma levels of folic acid. If so, folic acid supplementation can often normalize homocysteine levels.

**HbA<sub>1c</sub> and Glucose:** The HbA<sub>1c</sub> and glucose tests are pertinent to therapy in diabetics. HbA<sub>1c</sub> level correlates with the risk of developing chronic diabetic complications, including nephropathy, retinopathy, and neuropathy. Niacin is beneficial for heart disease but has been found by some studies to impair glycemic control in diabetic patients.

**Insulin:** Hyperinsulinemia is associated with the atherogenic lipid profile and metabolic syndrome. This is a clinically important marker for patients who have a family history of diabetes or for those patients who have slightly elevated blood glucose levels without other symptoms of the disease. The use of fasting insulin, especially when combined with other risk factors identifies patients at significantly higher risk for the development of cardiovascular disease.

**Homocysteine:** Recent evidence suggests that elevated blood levels of homocysteine are linked to heart disease. Homocysteine is derived from the amino acid methionine. The condition is relatively easy to treat with readily available and inexpensive vitamins.

**Lipid Panel:** Elevated LDL-C is a well established CVD risk factor and reduction in the LDL-C is one of the best predictors of improvement in numerous arteriographic regression trials.

Low HDL-C is also a well established CVD risk factor. Values <35 mg/dl are associated with increased risk and values <25 mg/dl suggest the presence of hypoalphalipoproteinemia. This latter condition places the individual in an extremely high-risk category and has a strong inheritance pattern. The lipid panel also measures triglycerides which when elevated can contribute to CVD.

**Lipoprotein (a):** Lp(a) is a LDL particle with a protein attached. It increases coronary artery disease risk threefold and is not detected by a routine lipid panel.

**Liver Panel:** The liver panel consists of seven tests: ALT (alanine aminotransferase), AST (aspartate aminotransferase), alkaline phosphatase, albumin, total bilirubin, direct bilirubin, and total protein. The panel helps monitor the liver's response to niacin, statin, and fibrate therapy. Obtaining a set of baseline LFTs is advised prior to initiation of therapy. LFTs should also be obtained after increases in statin, niacin, or fibrate dosage and for the initiation of combination lipid therapy.

**Chlamydia Pneumoniae Titer:** Chlamydia is a obligate intracellular pathogen associated with atherosclerosis. While cause and effect remain unclear, it has been reported in one study that patients with high Chlamydia and CVD have reduced events when treated with azithromycin.

