Left Ventricular Hypertrophy

The major pumping chamber of the heart is the **left ventricle**. This heart chamber pumps oxygenated blood into the **aorta**, the large blood vessel that delivers blood to the body's tissues. If the left ventricle has to work too hard, its muscle **hypertrophies** (enlarges) and becomes thick. This is called **left ventricular hypertrophy** (LVH). Because of the increased thickness, blood supply to the muscle itself may become inadequate. This can lead to cardiac **ischemia** (not enough blood and oxygen at the tissue level), **myocardial infarction** (heart attack), or heart failure. The November 17, 2004, issue of *JAMA* includes several articles about reducing the risks of heart failure and death from LVH by treating high blood pressure.

**CAUSES OF LVH**
- Hypertension (high blood pressure)
- Obesity
- Aortic valve stenosis (narrowing of the valve from the heart to the aorta)
- Obstructive cardiomyopathy (an inherited type of LVH that slows blood flow to the aorta because of overgrown heart muscle)

**SYMPTOMS AND SIGNS**
- Shortness of breath
- Dizziness
- Chest pain
- Palpitations (irregular heartbeats)

Because these signs and symptoms can indicate several different kinds of heart trouble or other illnesses, it is important to see your doctor if you experience any of these symptoms. Sometimes individuals develop LVH without symptoms, so checking blood pressure is important.

**DIAGNOSIS**
- **Electrocardiogram**—a display of the electrical activity pattern from the heart. Electrical conduction in the heart changes when the heart muscle becomes too thick.
- **Echocardiogram**—use of **ultrasound** (sound wave) technology to show a picture of the heart muscle indicating whether the cardiac muscle tissue has overgrown and if blood flow through the heart has been disrupted.

**TREATMENT**
Treatment of high blood pressure, usually including blood pressure medication and a healthful lifestyle (regular exercise, healthful diet to maintain normal weight, no tobacco use), can help prevent LVH from developing in the first place. If LVH is already present, treating hypertension can stop progression of LVH and may also prevent heart failure resulting from it. The other causes of LVH require specialized evaluation and treatment.

**PREVENTING LVH**
- Recognize and treat high blood pressure before complications such as LVH arise.
- Recognize and treat aortic valve stenosis before damage to the heart muscle occurs.

FOR MORE INFORMATION
- **American Heart Association**
  800/AHA-USA-1 (242-8721)
  [www.americanheart.org](http://www.americanheart.org)
- **National Heart, Lung, and Blood Institute**
  301/592-8573
  [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

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A Patient Page on heart failure was published in the February 6, 2002, issue; one on hypertension was published in the February 27, 2002, issue; one on electrocardiograms was published in the April 23/30, 2003, issue; and one on risk factors for heart disease was published in the August 20, 2003, issue.

**Sources:** National Heart, Lung, and Blood Institute; American Heart Association