Facts about The Strong Heart Study

- The Strong Heart Study (SHS) is a study of cardiovascular disease and its risk factors among American Indians.

- The SHS has a field center in each of the following areas: Arizona, the Dakotas, and Oklahoma. SHS also has a coordinating center in Oklahoma, Penn Medical Laboratory in Washington DC, an ECG and ultrasound reading center at Weill Medical College of Cornell University in New York, and a genetics center in San Antonio, TX.

- SHS began in 1988 and has continued through five phases of study. SHS added other family members to the study in 1997.

- SHS is the largest, longest longitudinal study in the U.S. of heart disease and its risk factors in individuals with diabetes.

- SHS is a population based study and has a retention rate of 90%. This shows the extraordinary commitment of SHS participants.

Visit our web site at: http://strongheart.ouhsc.edu

The Strong Heart Study is supported by the National Heart, Lung, and Blood Institute, a component of the National Institutes of Health and the Department of Health and Human Services.
Diabetes and Cardiovascular Diseases

Risk factors for coronary heart disease (CHD)

CHD is usually caused by the clogged blood vessels in the heart. It can cause chest pain, shortness of breath, heart attack, and other symptoms.

- Diabetes is a major risk factor for CHD
- Other significant risk factors for CHD in people with diabetes are:
  - Age
  - Smoking
  - High blood pressure (hypertension)
  - High LDL (“bad” cholesterol)
  - Low HDL (“good” cholesterol)
  - Albuminuria (a sign of abnormal kidney function where there is too much albumin, a type of protein, in the urine) and also low GFR (a blood measure of kidney function)

Why does diabetes increase the risk of cardiovascular disease

It is a complex process, but briefly, high glucose and insulin resistance are bad for the circulation and lead to many problems. There is a kind of inflammation that occurs with diabetes that damages the blood vessels, large and small. Damages to the large vessels are made worse because of other risk factors, such as high cholesterol and high blood pressure. These conditions are common in people with diabetes. Diabetes and these other risk factors lead to cardiovascular disease (CVD) which includes heart attack, stroke and leg vessel disease. Damages to the small vessels and other risk factors lead to eye disease and kidney disease.

CVD In Diabetes

CVD in diabetes is responsible for:
- 37% of all deaths. Of these deaths, 80% are from coronary heart disease, and 20% are from stroke or other cardiovascular disease
- Over 75% of all hospitalizations for diabetes complications
- Diabetes increases the risk of stroke by nearly 3 times compared to people without diabetes

Things You Can Do To Prevent CVD in Diabetes

- Lose weight if you are overweight
- Increase your physical activity to at least 30 minutes per day
- Eat a healthy diet - cut calories (lower fat and sweets), eat more vegetables, fruits and grains and use less salt
- Quit smoking
- Have regular checkups, take your medications regularly as prescribed by your doctor, maintain targets for blood pressure and cholesterol, and have your kidney function checked

ADA* Criteria for Diabetes

<table>
<thead>
<tr>
<th>Category</th>
<th>Milligrams of glucose per deciliter of blood (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Less than 100</td>
</tr>
<tr>
<td>Pre-diabetes</td>
<td>100-125</td>
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<tr>
<td>Diabetes</td>
<td>126 or higher</td>
</tr>
</tbody>
</table>

* American Diabetes Association, based on fasting glucose

Diabetes (%) by age group in the Strong Heart Study (SHS) family members

<table>
<thead>
<tr>
<th>Age</th>
<th>Women</th>
<th>Men</th>
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<tbody>
<tr>
<td>&lt;20</td>
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<tr>
<td>20-29</td>
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<tr>
<td>70+</td>
<td>41.0</td>
<td>46.0</td>
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