



STRONG HEART STUDY

INVESTIGATING CARDIOVASCULAR DISEASE
IN AMERICAN INDIANS

newsletter

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SHS-Dakotas honors Lillian Brown's retirement during the SHS Steering Committee meeting

An honoring and giveaway was held September 11, 2006 for the commemorating of Lillian Brown's retirement from the Strong Heart Study project. Lillian's tireless work contributed immensely to the success of the project in the Cheyenne River, Spirit Lake and Oglala areas. A dinner was served to the investigators and community people. The highlights of her career were noted by her coworkers from the study. Many people were honored by Lillian's work and contributions to the project.

Gratitude seems to be one of the characteristics that Lillian weaves into all aspects of her life as she told of the different stages she has grown through. Periods of adversity were described to demonstrate how Lillian made it through or what she was able to glean from the experience.

Lillian was the most thankful when referring to her grandparents, Albert and Rose (Shoulders) Useful Heart. They raised her and her sister. She feels they gave her the skills that helped her work and make her own way in the world. They taught by example and by explaining why they did what needed to be done to live a healthy life. She learned a lot about the old ways of drying turnips, and meat and how to set a winter store. Her grandparents lived in the country and going to town in the winter was not an option. They also taught her the values that she lives. They had a standard of respect that they passed on to Lillian. Her mother was Juanita LaBlanc and her father

was Tom Swimmer. Tom was killed in a car accident and Lillian does not remember him but was told by her grandparents that he sent money through the agency for her care.

She said she is grateful for the experience of boarding school. She learned to be independent and to not rely on others. This sense of independence gave her the ability to work hard and earn a living and help her own children as well as nephews and foster children.

Lillian raised four children of her own with her husband, Dodd (Ellsworth) Brown and also enjoyed having foster children in her home. She raised about sixteen all together. Her children are Fedelia Thunder, Virginia Howe, Benjamin Brown, and Acey Brown. She now takes pleasure in helping with her grandchildren.



Above: Honoree Lillian Brown being presented the "Lillian Brown Day" award by Harold Frazier, CRST Chairman. Her son, Ben Brown, is sitting beside her.

In the seventies Lillian began her career working outside the home. She named people in her life that supported her to get her G.E.D. and further her education so she could become a dorm matron and C.H.R. Her first

job was as a janitor for the Manpower program where she was encouraged by Arliss Keckler and others to keep on improving her skills. She went on to work with high risk mothers. She went on home visits to help with parenting and educating moms. She also became a C.H.R. and M.C.H. She worked for the Badlands National Park in Interior and returned to the Eagle Butte area. She went on to be a dorm matron in Eagle Butte and at

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SHS-Dakotas honors Lillian

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the Pierre Indian Learning Center.

In 1988 she applied and was hired as a recruiter for the Strong Heart Study. At that time, the Cheyenne River Sioux Tribe was the organization that hired Lillian. Thus started the connection of the Strong Heart Study and Lillian Brown. Lillian has enjoyed this experience. She enjoyed meeting and educating people. She said she has visited, taught and scolded people over the years. Her job has been to take some "guff" from time to time but kept on going back as she understood that sometimes people were having a bad day or would be able to listen better another day. Lillian's attitude of accepting people where they are at on any given day has contributed to the success of the project.

She has fond memories of what she has gained from working with people at Cheyenne River, Oglala and Spirit Lake. Lillian related that at the end of the day she would often think back to a family she had visited, thinking of what they were going through or what they had talked about, perhaps events from long ago and how they had persevered.

Her job was keeping in touch with people. She saw that as a way to keep people interested in the study and able to keep up their health as that is what counts.

On Tuesday, the group wrapped up the meeting and a review was held at the Eagle Butte clinic. Marcella Lebeau, a Cheyenne River Tribal elder, came and talked to the group about her life. The talk was informative in that Marcella, who is now in her eighties, has had a very active life and hearing about her culture and accomplishments was inspiring.

Those involved in that data sharing meeting traveled to Cannonball to meet with the Tribal groups, while others in the group stopped at the historical site of Sitting Bull's camp with Greg Sherwood, a community member from Standing Rock. A stop over at the Timber Lake museum provided people historical and pre-historical information about the area.

A meeting was held Tuesday evening with Tribal members on the sharing of the results of the study. The meeting was held to inform the Tribes about a new policy under consideration by NIH to share results of studies for ongoing research. NIH has a procedure for screening persons who want to access the results. Those present discussed outcomes of other studies that sometimes did not end well for Tribal groups. Due to the experience of the Tribes in these situations they feel that each Tribe must maintain some type of control. The meeting did result in an exchange of ideas and possibilities for working with NIH regarding the new policy.

The community meeting on 'Translating Results into Practice' was held at the Prairie Knights casino on Wednesday, September 13, 2006. Strong Heart investigators shared findings of the Strong Heart Study with goals of encouraging the adoption of more effective practices based on these results in the communities that are involved in the Strong Heart Study. Speakers for the day were Dr. Everett Rhoades, Dr. James Galloway, Dr. Tom Welty, Dr. James Howard, Dr. Richard Devereux, and Dr. Lyle Best. Indian Health Service sponsored CEU's for doctors and nurses. The turnout of community people and practitioners from the area was impressive. The evaluations indicated people enjoyed the presentations and learned from them.

SHS

Genetics and the SHS: What's the latest?

In past newsletters we have outlined the general methods that the SHS is using to find out how the genes that we inherit from our ancestors influence our risk for heart disease and some risk factors, like diabetes. One of these methods is called a genetic linkage analysis. Using this technique, researchers follow genetic "markers" that are known to be located on one of the 23 pairs of chromosomes that carry our DNA and about 30,000 different genes. Since we all have 2 complete sets of chromosomes and genes (one we inherited from our mother and one from our father), with each

passing generation we share only 1/2 of our genes with each parent, 1/4 of our genes with each grandparent, 1/8 with each great-grandparent and so on. The genes and pieces of chromosomes that we inherit are randomly "shuffled" between each generation. So if we see a particular marker (that we know is at some special location on a particular chromosome) is showing up in generation after generation; and some particular condition (like diabetes) is showing up in those same family members, generation after generation.....then we figure

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Genetics and the SHS

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that “birds of a feather flock together” and there is probably a gene close to our marker on that chromosome which is having an effect on diabetes risk.

Just lately, the SHS researchers found a set of DNA markers that seems to be linked with an increased heart size. Having a “big heart” might be a good thing if you were trying to say that a person is generous; but when your clinic doctor finds that your heart is bigger than usual, this is generally not a good thing. When we exercise like we are supposed to, our hearts don’t get bigger, they just get more efficient. If our hearts are under extra strain from high blood pressure though, they tend to get bigger and the heart muscle thickens. These changes are called hypertrophy and make our hearts more likely to have a “heart attack” or develop “heart failure”. The SHS researchers are excited to have found a

“neighborhood” on chromosome 12 that seems to carry genes involved with hypertrophy. Some experiments with mice show that certain genes can cause heart hypertrophy and blocking the action of these genes can prevent it. If these genes we have learned about in mice happen to be the same ones we have found in the SHS, then it could be a big help in discovering new medicines (or other methods) to control heart hypertrophy and prevent the heart disease that it seems to create. Unfortunately this “neighborhood” that has been found could still hold as many as 20-30 different genes; and we don’t have any idea yet which of these genes might be the ones involved. The next step for the SHS researchers is to check on another group of genetic markers that are located much closer together in this particular region of chromosome 12; and to apply these linkage methods one more time to narrow the search down to one or two genes. SHS



Avoid High Blood Pressure and Worse: “Eat Healthy” and Keep Moving!

Hypertension (or high blood pressure) is a medical condition characterized by elevation of blood pressure. Many studies have demonstrated that reducing blood pressure can prevent development of heart diseases and stroke, which are responsible for 35% of all deaths in the U.S.. However, despite treatments to reduce blood pressure, hypertension remains a risk factor for future strokes, heart attacks, heart failure and other life-threatening conditions, such as renal failure. An additional (and potentially better) strategy would be to prevent development of hypertension in the first place. It is well-known that overweight, obesity and diets very high in salt content increase the risk of developing hypertension. Some experts believe - - but others disagree - - that unbalanced diets, with too much fat and sugar, and abnormalities that can be measured in the blood, such as high “bad” cholesterol (LDL cholesterol), low “good” cholesterol (HDL cholesterol) and high blood sugar also increase the risk of hypertension.

We studied the Strong Heart Study population to identify characteristics that might in themselves increase the risk of developing hypertension over a relatively short time (8-years), to help develop an approach for primary prevention of hypertension (preventing this condition from developing by managing risk factors for it). Not surprisingly, we found that having a blood pressure in a range now called “pre-hypertension” (values of the systolic or upper blood pressure between 120 and 139 mm Hg or of

the diastolic [lower] blood pressure of 80 to 89 mm Hg), predicted development of future hypertension. Of even greater importance, when we focused our attention on participants whose blood pressure at the first SHS exam was “optimal” (<120/80 mm Hg), we found that the likelihood of developing hypertension over the next 8 years was increased by higher initial blood sugar, overweight and a higher ratio of “bad” to “good” cholesterol in the blood. Unfavorable changes over time, including increasing body weight, blood sugar and “bad” (LDL) cholesterol, or decreasing “good” (HDL) cholesterol further increased the risk of developing future hypertension.

The findings of this study suggest that the risk of developing hypertension, which affected 55% of SHS participants by the 3rd SHS exam in 1997-1999, can be reduced in American Indians as well as other members of the population by changes in individuals’ lifestyles. These include interventions that reduce weight and improve the body’s metabolism such as increasing physical activity and eating a healthier diet with less saturated and trans fats and refined carbohydrates as well as fewer calories. This study provides evidence that adopting a healthier lifestyle will reduce the proportion of American Indians who develop hypertension, multiplying the benefits that have been previously identified of reducing the risks of diabetes and heart attack by lifestyle changes. Even small modifications in our lives might improve the health of American Indian communities substantially. SHS

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Strong Heart Study

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New Heart Disease Risk Calculator Available Now on the SHS Website

Strong Heart investigators developed a mathematical equation for individuals and physicians of the American Indian communities to use to predict the risk of developing the most common heart disease, coronary heart disease (CHD). There are existing and widely-used CHD risk equations (developed by the Framingham Heart Study), but they were developed using data from other ethnic groups (mostly white). SHS investigators used SHS data and included a special factor particular to Indian communities that was not taken into account in other CHD calculators. This factor is albuminuria (too much protein in the urine, associated with kidney disease). The SHS found that the rates of albuminuria were high in the American Indian population. It was also found that the effect of diabetes on the development of heart disease was stronger in Indian people, particularly in women. Software has recently been developed for using the Strong Heart prediction equations, and the resulting CHD risk calculator is now available on the SHS website: <http://strongheart.ouhsc.edu>. Now anyone can input the following heart disease risk factor values and instantly obtain an estimate of his/her chance of developing CHD in the next 10 years:

- Age (between 30 and 100)
- Systolic Blood Pressure (upper of the 2 BP numbers)

- Use of Hypertension Medication(s)
- LDL-cholesterol ("bad" cholesterol)
- HDL-cholesterol ("good" cholesterol)
- Gender
- Cigarette Smoking Status
- Diabetes Status
- Macroalbuminuria (more severe kidney problem)
- Microalbuminuria (less severe kidney problem)

The Strong Heart Study's "user-friendly" online CHD risk calculator will not only allow you to view your estimated risk immediately, but it will also empower you by allowing you to input other scenarios (higher/lower values of risk factors) and immediately see your risk of developing heart disease increase or decrease accordingly. The SHS risk calculator will also be helpful as a tool for clinicians in evaluating patients and in educating them as to their likelihood for developing this serious disease and how changing some aspects of their lives could decrease their chances for developing heart disease. In a broader sense, the information derived from our online CHD risk calculator can be used in designing prevention programs for heart disease in the American Indian population.

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