



STRONG HEART STUDY

Cardiovascular Disease in American Indians

NEWSLETTER

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WELLNESS AND WOMEN IV CONFERENCE

This year's Wellness and Women's Conference was held from February 23-26, 1993, in Phoenix, Arizona. There was a record attendance, with 2,400 registrants who were primarily Native American women (6 men had registered).

This conference, sponsored by the College of Continuing Education at the University of Oklahoma, encompassed a wide range of topics. The activities to choose from included formal presentations, Health Fair/Well Women's Clinic, Talking Circles, Women's Sweats, Exercise Activities, Native Women's Showcase, Native American Artist's Exhibition, and Workshop Sessions.

The Strong Heart Study was well represented at this conference, as the National Heart, Lung, and Blood Institute (NHLBI) had a Health Fair Booth which they called "Improving the Health of Minorities." The exhibit provided many educational handouts, including a packet of four reproducible healthy heart messages. (These four messages plus other materials are available--contact your Strong Heart Study office.) They also distributed an extraordinary poster, "Keepers of Wisdom to Strengthen the Hearts," designed by artist Sam English. Besides the booth, NHLBI sponsored a workshop, "Traditions of the

Past Influencing Our Future: Healthy Heart." Speakers at the workshop included Dr. Claude Lenfant, Dr. David Baines, Dr. Jennie Joe, Paulette Cuny, May Helen Smith, and Ellie Zephier. This was the first time some of the Strong Heart Diet Study results had been presented. At the conclusion of the workshop, the workshop participants also received a t-shirt which was designed by Sam English.

Betty Jarvis and Paula Harper, of the Arizona Strong Heart Study, attended this conference. To be in the audience with the presence of the spirit of these Native American women was a moving experience to Betty and Paula. They were proud to be included and to represent the Strong Heart Study at this conference.

In addition, the Strong Heart Study in Arizona had the privilege of hosting a site visit for the NHLBI Ad Hoc Committee on Minority Populations. This Committee, composed of 17 representatives of the minority populations, advise the NHLBI on health concerns. They visited the Salt River Pima-Maricopa Indian Community. Following the visit, a committee dinner meeting was held, with Dr. Lenfant, Director, NHLBI. At the conclusion of the day, the Basket Dancers from Salt River provided entertainment.

DIABETES AND IMPAIRED GLUCOSE TOLERANCE IN THREE AMERICAN INDIAN POPULATIONS

Diabetes mellitus is the fifth leading cause of death for American Indians and Alaska Natives aged 45 years or above. It is also the third leading diagnosis for outpatient visits for both men and women. Prevalence of diabetes and impaired glucose tolerance (IGT) were determined in the Strong Heart Study. Diabetes and IGT status were defined by the WHO criteria and were based on fasting plasma glucose and oral glucose tolerance test.

The following table gives the age-adjusted prevalence rates by sex and by center. The Arizona center had the highest diabetes rates among the three centers (65% in men and 72% in women). These rates may also be the highest among all populations in the world. The prevalence of diabetes in Oklahoma and North/South Dakota, though lower than that in Arizona, is higher than that reported for

	n	AZ		n	OK		SD/ND		
		IGT	Diabetes		IGT	Diabetes	n	IGT	Diabetes
Men	521	15%	65%	618	15%	38%	605	14%	33%
Women	925	14%	72%	831	19%	42%	804	19%	46%

the U.S. population.

In all 3 centers, prevalence rates of diabetes generally increased with age, except that in men the rates declined after age 70. Among diabetics, 36% of men and 32% of women were diagnosed in the fourth decade of life. The prevalence of diabetes increased with the number of diabetic parents and degree of Indian blood. Diabetes rates also

increased significantly with body mass index (BMI), percent body fat and waist-hip ratio.

Thus, prevalence rates of diabetes have reached epidemic proportions in these populations. Diabetes has been recognized as one of the major health problems of Native Americans. There is an urgent need for health promotion and education in order to reduce the burden of diabetes in this population.

TOBACCO USE

Tobacco has been used for ceremonial purposes by Indian people for many centuries, and its ceremonial use has not been associated with adverse health effects. However, abuse of tobacco in the form of habitual smoking of manufactured cigarettes has become common among Indians and non-Indians. This habitual use of tobacco is associated with many adverse health consequences, including increased risk of heart disease, stroke, cancer, emphysema, and even increased risk of infant mortality, if smoking occurs during pregnancy. Recently, the Environmental Protection Agency (EPA) has declared that exposure to environmental tobacco smoke (secondhand smoke) causes the deaths of approximately 3,000 Americans from cancer each year.

The Strong Heart Study provides a unique opportunity to assess the habitual use of tobacco in three different Indian groups as well as to evaluate the health consequences of tobacco use.

These results (Table 1) indicate that men smoke more commonly than women, and the rates of smoking are higher in North and South Dakota than the other two sites. In addition, Arizona participants who smoked, smoked about half as many cigarettes per day, i.e., 7 per day in Arizona versus 13 per day in North and South Dakota.

Smoking cigars and pipes and use of smokeless tobacco occurred infrequently (less than 5%).

Exposure to environmental tobacco smoke occurred much more commonly in North and South Dakota than the other two sites (over 4 hours per day).

Although preliminary analysis does not indicate that cigarette smoking was a risk factor for heart attacks in the study participants, further analysis on the health consequences of cigarette smoking are under way. Mortality rates for lung cancer and emphysema are higher in tribes where smoking is common. The health effects of exposure to environmental tobacco smoke will also be analyzed. Based upon the results of the Strong Heart Study and recent recommendations from the EPA, the following recommendations are proposed:

1. The special significance of tobacco as a plant with ceremonial uses should be emphasized, and the recreational use of tobacco should be discouraged.
2. All persons utilizing tobacco on a daily recreational basis are encouraged to reduce the amount of use or to quit entirely. Smoking cessation classes may be available to assist you in your efforts to quit. It is important to set a quit date and to make every effort to stick with that date. However, if you don't succeed the first time, keep trying. Many people require five or six tries before they successfully quit smoking and are able to control the addiction.

3. Reduce exposure to environmental tobacco smoke. Encourage your tribal council to pass a resolution to restrict smoking in offices, public buildings, and schools throughout the reservation. The Indian Health Service has taken a lead in this area, and all its facilities have been smoke-free since 1987. Smoke-free work environments are healthier and also are helpful in assisting smokers to reduce the number of cigarettes smoked per day or to quit entirely. Institution of smoke-free work places should be done in conjunction with smoking cessation programs for those employees who wish to stop smoking.

4. Establish a smoke-free environment in your

home. Exposure to secondhand smoke definitely has adverse consequences, especially for pregnant women and young children. Children who are exposed to environmental tobacco smoke have more asthma, ear infections, pneumonia, and other respiratory infections. As community elders, Strong Heart Study participants are encouraged to promote the institution of smoke-free environments for pregnant mothers and children, so that future generations of Indian people will be as healthy as possible.

Tobacco was not meant to be abused. The special significance of tobacco should be preserved in such a way that adverse consequences of its misuse are avoided.

TABLE 1
STRONG HEART STUDY
TOBACCO USE AND EXPOSURE TO ENVIRONMENTAL TOBACCO SMOKE (ETS)

	AZ			OK			ND/SD		
	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL
CIGARETTE SMOKING									
% Current Users	29.7	12.9	19.0	36.8	31.5	33.7	53.1	45.3	48.6
% Ex-Smokers	49.9	30.0	37.3	43.5	29.5	35.4	32.2	26.3	28.8
% Never Users	20.4	57.0	43.8	19.8	39.0	30.9	14.8	28.5	22.5
Current Users:									
Average/Day	7.6	6.1	7.0	12.7	10.9	11.7	15.0	11.4	13.1
Environmental Tobacco Smoke Exposure									
Average Hours/Day	1.0	1.3	1.2	3.3	3.0	3.1	4.6	4.1	4.4

PERIPHERAL VASCULAR DISEASE

The Strong Heart Study is studying the prevalence and risk factors of cardiovascular diseases in American Indians. Primary interest is in ischemic heart disease, most well known as "heart attacks," because the reduced supply of oxygen to the heart causes serious chest pain and death of the heart muscle. Another form of cardiovascular disease that is of greater interest among American Indians than other subgroups in the United States is peripheral vascular disease (PVD). This is a disease that occurs from reduced blood flow to the legs and feet that causes leg pain, especially with exertion, that is generally relieved with rest. In its severest forms, it may be associated with leg pain at rest. Similar to a heart attack, it results from the reduced supply of oxygen to muscle; however, in the case of PVD, it is a reduced supply of oxygen to the leg muscles that results in leg pain.

The Strong Heart Study measured a number of characteristics that are potentially related to PVD. These include the sounds of blood flowing through the arteries leading to the legs, pulses in the foot as measured by feel and sound, blood pressure comparisons of the ankle and arm, and histories of leg pain. Of all these measurements, the ankle/arm index is the best measure of PVD in the three populations of American Indians studied by the Strong Heart Study. The ankle/arm index is a ratio of the systolic blood pressure (the first or higher number taken in blood pressure measurement) in the ankle or lower leg to the systolic blood pressure in the arm (the blood pressure measurement normally taken in all physical

examinations). This ratio is normally greater than one, because leg blood pressure is normally greater than arm blood pressure. However, when blood flow is limited in the leg, this ratio will be reduced. Medical scientists disagree on the most appropriate cutoff value that indicates definite PVD, but all agree that a value less than 0.8 is highly likely to represent PVD and a value greater than one is highly likely to represent no PVD. Others suggest that ratios of 0.9 and 0.95 may be more appropriate cutoffs.

For the Strong Heart Study, data have been presented in several ways to better understand the differences among the centers. Using a cutoff value of 0.80, results indicate that about 2% of the population in each center have PVD. If the higher cutoff of 0.95 is used, the proportion of people with disease is between 5 and 10% of the population in each center. Further analyses of the data using the 0.95 cutoff indicate that centers are fairly similar (Oklahoma Indians may have a slightly lower rate) and a higher percentage of women than men have PVD. PVD is also higher in individuals with diabetes, high blood pressure, and those who smoke. Among diabetics, those who have had diabetes longer have a greater chance of having PVD. Other studies have shown similar associations with PVD. It has also been linked to a greater chance of heart disease and higher levels of fibrinogen (a factor involved in blood clotting), insulin, and glucose. Further analyses are expected to determine if PVD is related to these factors in American Indians, as it is in the non-Indian population.

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