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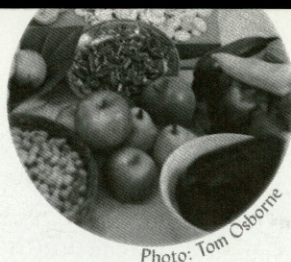


Photo: Tom Osborne



Photo: Jennie Auman

# A New Study of Adventist Health

*By Gary Fraser*

Several epidemiologic studies have been conducted over the past four decades to document and understand the health of Adventists. The main goal of the earliest studies was to compare rates of disease in Adventists and non-Adventists of similar ages in the same communities. Such studies were conducted in Norway, the Netherlands, Denmark, Japan, and in California.

In 1958, Frank Lemon and Richard Walden initiated the first such study, which became known as the Adventist Mortality Study. One of the well-known conclusions of this landmark study, which focused on Adventists in California, was that they “live longer and experience less mortality from cancer and heart disease than non-Adventists in California.” Unfortunately, data on nonfatal cases of cancer and heart disease were not collected. Although the dietary information was quite rudimentary by modern standards, the study made some useful comparisons between the health experience of Adventists who ate differently from other Adventists or had other contrasting risk attributes. The analysis was completed by Roland Phillips, Jan Kuzma, David Snowdon, and, more recently, Kristian Lindsted and Pramil Singh.

Phillips and Kuzma began a different type of epidemiologic study between 1974 and 1976. It enrolled 34,192 white non-Hispanic Adventists and almost 1,700 black Adventists, and became known as the Adventist Health Study. The goal of Phillips and Kuzma was to understand more about the particular components of the Adventist diet and lifestyle and why they led to decreased risk. They compared the experience of different types of Adventists, in particular the occurrence of new disease events after the participants were enrolled. Paul Mills and I, and more recently, Synnøve Knutsen, conducted the analyses of this study. Larry Beeson, followed by David Shavlik, managed the data and the computer programming.

These studies have provided information for more than eighty peer-reviewed publications in medicine, and others will follow. The work is well known and often quoted in the diet disease literature. Recently, we collaborated with a group at the University of Oxford that had managed two prospective studies of British vegetarians. Putting its data together with ours allowed additional useful analyses. For the last ten years we have been trying to get funding for another Adventist Health Study, and we recently succeeded.

We need all kinds of Adventists to enroll in our studies, not just the “health reformers.”

### Why Another Study of Adventist Health?

Although previous studies have been productive, the number of questions not answered still exceeds those that have been. For example, when investigating risk of less-common types of cancer, we often detected only fifty to sixty new cases of a particular cancer. This did not allow determination of results with sufficient accuracy to be useful.

Even for more common cancers, such as colon cancer, the precision left much to be desired. For instance, our best estimate was that nonvegetarians had 85 percent more risk of colon cancer than vegetarians. We could be 95 percent confident that the true result lay between a 16 percent increase and a 187 percent increase, at least—all in the direction of increased risk—and thus so-called “statistically significant.” However, the result would have been much more informative if the confidence interval had been between a 75 percent and 95 percent increase.

A much larger study can usually achieve an increase in precision.

Many advances in nutritional epidemiology have occurred over the twenty-seven years since the Adventist Health study started. For example, we now have a better understanding of how to measure diet more accurately, although we also know that important errors will still be present. People have difficulty telling us with accuracy what they eat, even though the questionnaire about this issue has been designed well. We now know that we need to ask each participant about the consumption of 100-120 foods to get a fairly accurate picture of each person’s diet. Of

course, we could ask about hundreds of foods. How to choose is a matter of considerable statistical complexity, and we have directed much of our effort during the last five or six years toward this problem.

To facilitate matters, we asked 320 randomly selected participants to complete a more extensive questionnaire that included 200 foods. This group also gave more detailed and



Polly Campbell, left.

### Health Evangelism Blossoms in California

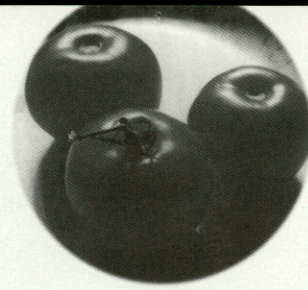
California Adventists, long the subject of epidemiological studies because of their vegetarian lifestyle, have also long been interested in sharing Adventist principles of health in various ways. In July, researchers at Loma Linda University published a report in the *Archives of International Medicine* about the longevity of Adventists and were awarded a multimillion dollar grant from the National Institutes of Health to study cancers of the breast, colon, and prostate. In addition, there have

been health evangelism projects large and small across the state.

During most of September 2001, two conferences and four Adventist hospitals in Southern California partnered to sponsor a booth at the Los Angeles County Fair, the largest county fair in North America. Southern and Southeastern California Conferences rallied more than 100 members to volunteer and/or do noninvasive health screenings in the booth during the fair’s seventeen-day, ten-hour-a-day schedule. Betty Cooney, Southern California Conference Communication Director, and Audray Johnson, Southeastern

California Conference Health Ministries Director, coordinated other aspects related to the booth. Vi Bokermann, a lay person from Temple City Church, served as volunteer coordinator. The Gideon Players, a drama group from Glendale Adventist Academy directed by Pastor John Aitken, religion and drama teacher, gave performances about staying smoke free that it adapted from a script shared by Glendale Adventist Medical Center.

In addition to Glendale Adventist Medical Center, Loma Linda University Medical Center, Simi Valley Adventist Hospital, and White Memorial Medical



accurate information by way of eight 24-hour recalls, which were too expensive to use with all participants. This "validation study" made it possible for us to form some judgment as to which of the foods on the questionnaire gave useful information about many nutrients, minerals, and vitamins (for example, saturated fat or vitamin C intake), when compared to the more accurate repeated 24-hour recalls.

Validation studies have also been used to collect biological estimators of the nutrients or vitamins in question independent of the questionnaire data. For instance, we drew blood from participants in our validation study to estimate levels of vitamin C and

other vitamins, and we obtained a small specimen of fat from beneath the skin with a fine needle, then measured its content of saturated (and other kinds of) fatty acids. Putting this information together with the dietary data helped us arrive at an estimate of errors in the dietary questionnaire information. Afterward, we could estimate accurately the effects of diet on risk of disease, largely eliminating the influence that unavoidable errors in the dietary questionnaire have on results. These errors, by the way, are largely responsible for the sometimes conflicting and confusing information about the association between diet and disease often discussed in the news.

An ounce of prevention: finding the connection between lifestyle and disease. Members of Loma Linda University's School of Public Health Adventist Health Study research team discuss recent findings during an informal meeting. Pictured are (seated, from left): Hanni Bennett, research associate; Larry Beeson, assistant professor of epidemiology; Synnøve Knutsen, chair, department of epidemiology and biostatistics; David Shavlick, statistical programmer; (standing, from left) Kristian Linstedt, associate professor of epidemiology; Gary Fraser, primary investigator, director of the Center for Health Research, and professor of epidemiology and biostatistics.



Center were booth sponsors. Loma Linda University School of Public Health assisted.

A health information Web site <[www.Power4Health.org](http://www.Power4Health.org)>, based on Adventist health principles, was also launched during the Los Angeles County Fair. The online health resource is a 2001 project of the Pacific Union chapter of ASI, with ASI member Lorayne Barton overseeing health and lifestyle content developed by a lay group.

The Web site invites people to learn more about preventing and reversing diseases and about natural remedies. The site will initially include a list of

health events in Adventist churches in Southern and Southeastern California Conferences. October is targeted as the time when the health event feature will expand to include all conferences in North America through a link with a new feature planned by Tagnet.org.

Local churches in California are also featuring health evangelism projects. At the Roseville church in the Northern California Conference, a Vegetarians' Night Out has drawn at least 100 community people each month for a vegetarian dinner and health lecture. Polly Campbell, Roseville's health ministries leader, and Jack McIntosh,

health educator from Weimar Institute, were recently interviewed by Three Angels' Broadcasting Network because of the dinners' success in bringing new members into the Church. Campbell and McIntosh are offering a health evangelism packet to help members launch similar projects in their own churches. The packet includes a video of the kitchen preparations and lecture, slides to be used with the lecture, instructions on setup and promotion, recipes, and twenty ideas for a church strategic plan for health evangelism. (For more information on the packet call 530.637.9314.)

## This research would not be possible without the obese, hamburger-eating, pastry-loving members in our midst!

Ethnic minorities were poorly represented in our previous work. The Adventist Health Study included about seventeen hundred black Adventists, but low numbers severely limited our findings. We had no intention to discriminate, and we approached ethnic congregations in the same way as others. However, we did not appreciate the powerful influence of cultural differences, or attitudes toward medical research that are sometimes negative. Indeed, twenty-five years ago virtually no one in the research community fully understood these matters. The situation is different today, although we are still learning about successful strategies to encourage minority participation. These populations often have special health problems in urgent need of further understanding.

### The Goals and Design of the New Study

In the past, one aim of these studies was to show the advantage of living an Adventist lifestyle. This has been accomplished: it is not news any longer. The goal of the new study is to provide new, more accurate and precise information about associations between diet

and disease that can benefit all members of society. The National Institutes of Health continue to fund these studies because Adventists can provide quality information on diet-disease associations more efficiently than most other research populations. Reduced risk among Adventists is of little interest to the broader community—or to our neighbors—unless our findings can be applied to them. Because most people will probably not become vegetarians overnight, the influence of individual foods and food groups on risk of disease needs to be established. Many will more readily change the emphasis of their diet than overhaul it completely.

Studies about Adventists can provide answers more efficiently because they have a broader range of dietary habits. Many Adventists are vegetarian and eat more fruits, vegetables, and nuts than non-Adventists, whereas others have diets much like any other American. Thus, strong contrasts are possible. It grieves me somewhat, but this research would not be possible without the obese, hamburger-eating, pastry-loving members in our midst! We need all kinds of Adventists to enroll in our studies, not just the health reformers.

Another advantage of focusing on Adventists is the

virtual absence of such confounding factors as cigarette smoking and alcohol consumption. In addition, the general interest that this population has in diet probably allows them to report their habits with somewhat greater accuracy than usual. Finally, some special foods that they consume in unusual amounts are of particular interest. One example is soy, with the possibility that its isoflavones protect against cardiovascular disease and certain cancers.

The scientific goals



Photo: Tom Osborne

Polly Campbell, left.

Weimar Institute, the self-supporting health retreat located in Northern California known for its eighteen-day NEWSTART lifestyle program and the three-day Reversing Diabetes and Obesity Seminar, is adding more reasons for people to come to its mountain location. It is inviting churches to use its inn and meeting rooms as options for retreats. A health evangelism retreat was held at the inn in September. Individuals are also invited to take advantage of the Institute's bucolic location. Weekend

getaway packages include two to three nights' lodging, meals at the Weimar Country Cafeteria, and hydrotherapy and massage treatments. (Call 800.525.9192 for information.)

**Betty Cooney, communication director of the Southern California Conference, and Mary McIntosh, professor of English at Weimar College, provided information for this story.**



of the funded new study are directed toward risk of cancer. Special emphasis will be placed on the effects of soy foods, meat in the diet, and calcium intake. Because they will be over represented, black Adventists will also be emphasized. In the future, we hope to research the effects of diet on such disease outcomes as osteoporosis, dementia, heart disease, and diabetes. In addition, prospects exist for intriguing research on the effects of Adventist doctrine and degrees of religious participation on physical health. This all awaits additional funding.

The study that has been funded will allow us to enroll 80,000 white and 45,000 black Adventists. To achieve this level of participation, we will approach members in all black Adventist churches in the United States, and probably about 75 percent of white (or non-ethnic) congregations in the country. Enrollment will be accomplished simply by completing the study questionnaire. This will take between 1 1/4 and 2 1/2 hours. Our pilot work with more than five hundred completed questionnaires in five congregations indicates that we can expect the participation of about 50 percent of active members in white congregations and 40 percent in black churches. Higher rates of participation would be a very welcome bonus!

Starting in January 2002, enrollment will proceed church-by-church over the course of four years, moving first up the West Coast of the United States, then to the Midwest, on to East Coast, and finally to the South. One to three key study representatives will be identified from among lay members in each congregation. These members will work closely with study staff to coordinate publicity campaigns at their churches over a period of four to five weeks.

Very different approaches have been planned and pretested for black and white congregations. The plan for black congregations was developed in collaboration with the Seventh-day Adventist Black Advisory Council, a group of prominent black Adventists. Two members of our research team are black Adventist church members; a third has family ties to the African-American community and attends a black Adventist church.

For five years after enrollment all new cases of cancer—or deaths from any cause—will be enumer-

ated for the population under scrutiny. To find these events we will consult various state tumor registries and the National Death Index, and attempt to make contact with participants on a biannual basis. Our efforts to follow up will undoubtedly last ten to fifteen years, but its duration depends on additional funding.

The logic behind such a prospective study is quite simple. Groups of Adventists are defined according to their habits and lifestyle at the beginning. Then, the health experiences of the groups are compared over the next five to ten years. By inference, we can determine that some characteristic that has defined differences between the groups has produced observed contrasts in the experience of disease. Statistical modeling would allow us to draw similar conclusions without forming the groups, but instead we use actual data from individuals and let each fall into his or her own category.

This is long-term research. The first reports of results should be produced in five to six years. However, I expect to be a (hopefully still healthy) old man before we realize much of this study's potential. I invite each reader to participate when the study reaches his or her church. This project is an opportunity to serve our neighbors and community in a unique way true to Adventist heritage, a valuable opportunity.

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