

The Adventist Health Studies' Annual Newsletter

Present Activities and Progress in AHS-2

It is time for another annual update about AHS-2. Your membership in this study is greatly valued. Although it will be another two to three years before we report the main results from AHS-2, there are several interim results we believe will interest you. First, here are some of the activities that have occupied our small team of epidemiologists, nutritionists, statisticians, and physicians during 2010.

Tracking: We do our best to keep in contact with all 96,000 of you—not an easy task! Thousands of AHS-2 members move each year (we hope that for most it is moving on to better things). Keeping names and addresses current is essential. Many of you do a great job of keeping us informed. For others we rely on checking the National Change of Address computerized database. So far we have lost track of only 1% to 2% of study members for more than one year.

Questionnaires: Designing the biennial questionnaires about hospitalizations is far from simple. You may be surprised how easy it is to form a confusing new question (not our goal, by the way!).

So even if you get stuck on a question, please give us a call to seek clarification to complete the form. The cost of up to four mailings of the



Headquarters: Part of the AHS-2 staff at Loma Linda University.

biennial questionnaires and your reply-paid returns is over \$200,000 every two years, and the information you provide is vital.

Cancer and Disease: As the main goal of AHS-2 is to determine links between dietary habits and cancer risks, we must find all new cancers that develop among our 96,000 study members across the U.S. and Canada. Each state and province has its own cancer registry with its own regulations, application processes, requirements, and costs. So far we have concluded agreements with 39 registries, and have linked data with most.

AHS-2 also has the potential to search for lifestyle causes of many other diseases aside from cancer.

In our biennial questionnaires we ask about other diseases. Several of our ongoing studies relate to these. You may receive a call or letter from us that focuses on heart disease, arthritis,

Parkinson's disease and others. But rest assured, security and privacy of your information is always a primary concern with any portion of our study.

Progress: We have published more than 30 professional articles from AHS-2 (page 4). As we are still in the developmental and "waiting" phase of the study, many of these reports are rather technical, but we have highlighted those studies of a more general interest in this newsletter (pages 4-6).

Funding: It is the investigators' task to seek funds to cover costs and to expand the study. In the last three years at least eight major grant applications have been written. These each take about a month to prepare. In these challenging fiscal times, what was previously relatively easy to keep funded has become much more difficult. Competition is fierce and larger

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Latest Funding Provides Fellowships By Karen Jaceldo Siegl

While awaiting further funding from the National Cancer Institute, AHS-2 has been operating through the support of the School of Public Health at Loma Linda University (LLU).

Dr. Gary Fraser has continued to write grants, and in 2010 the World Cancer Research Fund awarded AHS-2 \$200,000 over the next four years to complete the matching of all new cancers from the 96,000 members of AHS-2 with all U.S. and Canadian cancer registries.

AHS-2 also received an \$800,000 grant from the U.S. Department of Agriculture (USDA) in May 2010 to train future researchers and to provide intervention in Black/African American communities in San Bernardino County. This grant will provide an opportunity for talented

fellows to gain experience, develop research skills, and publish research papers using data from the 96,000 participants of the AHS-2 cohort.

For our post-doctoral fellowships, we looked for applicants with strong analytical skills and previous training in epidemiology, biostatistics, medicine, nutrition, biosciences, or related fields. We received applications from individuals with diverse educational training, ethnic backgrounds, and nationalities. We are pleased that Dr. Nico Rizzo and Dr. Michael Orlich, shown below, were awarded fellowships in 2010.

The USDA grant also supports a project that will educate and motivate behavioral change in Black/African American churches

Summary of Recent Funding

\$200,000 from the World Cancer Research Fund

\$800,000 from the U.S. Department of Agriculture

of different denominations and in community settings (*page 7*). One goal of the project is to record a step-by-step process that can be repeated in any church.

As always, we at AHS-2 can't thank you enough for your continued support!

Karen Jaceldo Siegl, DrPH, is a Co-Investigator for AHS-2.

Meet Our Post-Doc Fellows



Nico S. Rizzo

Nico S. Rizzo, PhD, has an Italian heritage, but was born and raised in Germany. He speaks three languages (German, English, and Italian) and is a trained vocalist (bass). He enjoys riding his mountain bike and hiking in the hills surrounding Loma Linda and Riverside. In the 1990s, he served as a minister in Italy. He also conducted

seminars on health issues for the general public in Europe, the U.S., Asia, and Micronesia. He obtained a MSc in nutrition science from the Justus Liebig Universität in Gießen, Germany, and a PhD in medicine from Karolinska Institutet in Stockholm, Sweden. Dr. Rizzo came to LLU in 2009 as a postdoctoral fellow in the Nutrition Department, where

he is currently an assistant professor in public health nutrition and biology. He joined AHS-2 as a fellow in July 2010. During his time with AHS-2, he will be involved in analysis and writing papers on developing nutrient indices, dietary correlates of vegetarianism, and the association between diet and diabetes.

Michael J. Orlich, MD, grew up in Indiana and, as a child, sang in the National Children's Choir. These days, you will find him training for a marathon when he is not busy working as a physician and researcher. According to Dr. Orlich, three longstanding interests have shaped his life: missions/ministry, which he attributes to his mother; nutrition, lifestyle, and chronic

disease, which he traces back to when his father had a heart attack at age 53; and a general interest in learning. He obtained his MD from the University of Michigan in 2001, and completed a Family Practice Residency from Tacoma Family Medicine in 2004. He then worked as staff physician for two years in Weimar, Calif., and became Health Depart-

ment Chair, and finally Acting Dean at Weimar College. He recently completed a Preventive Medicine Residency at LLU and started his doctoral studies in epidemiology. In August 2010, he joined AHS-2 as a research fellow. His primary research area will be an investigation of rheumatoid arthritis and dietary risk factors.



Michael Orlich



In the News

By Hanni Bennett

Have you noticed all the publicity about Seventh-day Adventists lately? First there was the article about longevity in National Geographic a few years ago. This stirred the interest of local and national newspapers who eagerly interviewed AHS-2 investigators about the Adventist lifestyle and the findings of the study. Then the book "The Blue Zones" was published, and more recently the DVD "The Adventists" was released. Not only are interviews with Dr. Gary Fraser and other investigators aired on 3ABN and local church channels, but reporters and film crews are coming from all over the world, including from Norway, France and Brazil, to find out more about AHS and the Adventist lifestyle! All of this is happening because 34,000 church members in California participated in AHS-1 35 years ago.

As you know, this time we have enrolled 96,000 church members from the U.S. and Canada. This larger number will give us even more valuable data. Once the data are analyzed, we expect our publications will be met with equally great interest. And the credit will have to largely go to you, the members who have spent time filling out the detailed questionnaires and answering follow-up questions when necessary. So, the next time you hear or read reports about the benefits of the Adventist lifestyle, give yourself a pat on the back for helping make this buzz possible.

Anticipating Results

By Allan Handysides

Earlier Adventist Health Study scientific findings have validated the core of the Adventist lifestyle as being both qualitatively and quantitatively beneficial.

Many Adventists are awaiting results from the current Adventist Health Study and have high expectations.

Within the ranks of the vegetarian community, there are many beliefs that have become almost "sacred." I have tried to assure myself I will be willing to accept the new findings with equanimity, but I am wondering how I will feel if some cherished beliefs are proved erroneous.

Imagine our reaction if a pescovegetarian diet (fish-containing) trumps the lacto-ovo-vegetarian! Or what if those pleasantly plump BMI 26-27 folk do better than the BMI 23 types? The study could also show split results. For example, vegans could do better cardiac-wise, but worse in the cancer category.

As our anticipation grows, we in the General Conference Health Ministries Department applaud our Loma Linda colleagues and all who are participating. Funding issues related to budget cuts and the recession may slow some of the flow of data, but we are prepared to be patient. This is a study worth waiting for. We expect to learn a great deal from everyone's hard work, and we encourage



"While we wait, let's not neglect what we already have been shown is important: Exercise, rest, temperance, faith, sunshine, fresh air, and clear, pure water."

everyone to pray for the continued and improved financial support of this most valuable project.

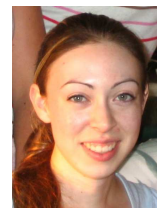
While we wait, let's not neglect what we already have been shown is important: Exercise, rest, temperance, faith, sunshine, fresh air, and clear, pure water. These things, when coupled with a well-balanced vegetarian diet, applied with optimism and integrity, will permit Adventists to engage in service that reflects the care and compassion of Jesus. Our lives must truly be those of living praise, full of the celebrations of health.

Allan Handysides, MD, is the director of the Health Ministries Department of the General Conference.

Meet the Editor

We are pleased to announce we have hired Jennifer Frehn as AHS-2's Project Editor. Jennifer has worked as an editor for several newspapers and most recently for an online advertising company in Orange County, Calif. In 2009, she served as a volunteer English teacher in Peru. She enjoys comedy and hiking. Hopefully she will be able to explore the hills around Loma Linda once she is settled in.

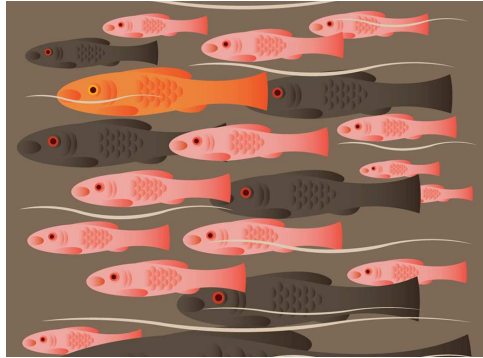
This newsletter is Jennifer's first product with us, and we hope you enjoy reading it. Her next task will be to bring our website up-to-date and to make it more user-friendly so you will be able to access new information regarding AHS-2, update us of new addresses or telephone numbers, etc. Some of Jennifer's time will also be devoted to writing articles for publication in church papers, and answering inquiries from the press.



Jennifer Frehn

Do Vegetarians Get Short-Changed on Vitamin D?

By Nico S. Rizzo



“A vegetarian diet was not associated with lower levels of vitamin D. Other factors, such as vitamin D supplementation ... and intensity of sun exposure had a greater influence on vitamin D levels than diet.”

A study published by previous AHS-2 post-doc fellow Dr. Jacqueline Chan et al. looked at the vitamin D status of vegetarians, partial vegetarians and non-vegetarians.

Vitamin D is an important hormone in the prevention of osteoporosis and rickets but beyond that has major functions in the prevention of heart disease, cancers, diabetes and in the regulation of the immune system. Foods naturally rich in vitamin D are all from animal sources. The only naturally occurring plant sources of vitamin D are certain mushrooms, in which it is present in only small amounts. Considering these facts, the investigators wondered if vegetarians would

have lower blood levels of vitamin D than non-vegetarians. The results demonstrated that a vegetarian diet was not associated with lower levels of vitamin D. Other factors, such as vitamin D supplementation, degree of skin pigmentation, and amount and intensity of sun exposure had a greater influence on vitamin D levels in blood than diet.

As you can see, your participation in AHS is helping us answer important health questions and provide a scientific basis for lifestyle interventions that can be of great help to the public. Many thanks for your participation.

Nico S. Rizzo, PhD, is an AHS-2 Research Fellow.



Researchers' Thoughts ... On Falling Asleep

AHS-2 results indicate 53% of Blacks and 24% of Whites sleep six or fewer hours per night. We know that sometimes schedules prevent sleeping the recommended seven to nine hours per night, but in other cases, adults simply have a hard time falling asleep. We wondered, what do researchers do to fall asleep faster?

“I find that going over a statistical problem in my mind can be relaxing. When I can no longer quite formulate the problem in my mind, I know the ‘drift to sleep’ has started. It, however, can be a two-edged sword. If the problem is really tough and I badly need it solved, the anxiety can have the opposite effect, keeping me awake!” - Dr. Gary E. Fraser, Director of AHS-2



“I listen to audiobooks. Usually history or religion spirituality. These are interesting, but not stimulating/exciting, so they are good for sleep. Audible.com, Amazon, and iTunes are places to get high-quality audiobook recordings. Librivox.org has free audiobooks, though the reading/recording quality is not always good.”

- Dr. Michael Orlich, AHS-2 Research Fellow

AHS-2 Papers Published

Below is a breakdown of the subject matter of AHS-2 papers published so far. To read the abstracts, visit adventisthealthstudy.org.

- 9 on selected **health effects** of vegetarian and other **lifestyle characteristics**.
- 6 on recruiting and working with **Black study members**.
- 7 on development of new **statistical techniques** to improve accuracy.
- 3 on **psychosocial/religious factors** and disease.
- 5 on how well our **questionnaire measures diet**.
- 4 on a description of the main **AHS-2 study** and **religion substudy**.

Total : 34



You Asked...

By Hanni Bennett

Question: What foods are included in centenarian Dr. Geraldine Branch's longevity "superfood" list, mentioned in the previous newsletter?

Answer: "I enjoy a great variety of vegetables, but high up on the list are all dark green leafy vegetables, such as kale, collards, chard, etc.; grains (quinoa, brown rice, millet, barley, oatmeal); and all fruits," Dr. Branch shared. She said she tries to stay away from foods with a high glycemic index, but occasionally indulges in sweet potatoes, yams and carrots.

Question: Why don't you save postage by sending questionnaires for members in the same household in one envelope?

Answer: Great question! The mailings are all computerized. To manually sift through them and look for the same addresses would be time consuming and more expensive than the extra postage. However, do feel free to send all of your family's questionnaires back in one envelope and include the unused envelope.

Your Health Tips

Understanding Metabolic Syndrome

By Michael Orlich

We at AHS appreciate your interest in science and health. In this column, we want to share tips on how you can be healthy. This is only general advice, so for specific medical instruction, please ask your physician.

Metabolic Syndrome

Have you heard of "metabolic syndrome"? Here is a primer to help you understand what it is, why it is important, and what you can do.

What is the Metabolic Syndrome?

In the metabolic syndrome (MetS), changes in your metabolism can show up as a pattern of abnormal physical and laboratory findings. While exact definitions can vary, these are the five main features of the MetS:

- 1) **Abdominal obesity**, meaning a waist measurement more than 40 inches in a man or 35 inches in a woman.
- 2) **High fasting blood sugar**, greater than 100mg/dl.
- 3) **High triglycerides** (blood fat), greater than 150mg/dl.
- 4) **Low HDL** (good cholesterol), less than 40mg/dl for a man or less than 50mg/dl for a woman.
- 5) **Elevated blood pressure**, greater than 130/85mmHg. If either number is higher, that counts.

If you have three or more of the five features, you meet the criteria for the MetS.

Why Does It Matter?

It matters because it means you have an increased risk of developing both heart disease and diabetes.

What Causes It?

Science has not yet provided all of the answers to this question. What seems clear is abdominal obesity plays a big role. The fat tissue that builds up around your waistline releases chemicals in the blood that cause your body to become resistant to insulin, which can make your blood sugar go up. It also changes how your body handles different types of cholesterol, causing more fats to build up and depleting your levels of good

Latest Results

Recent research by AHS-2's Dr. Nico S. Rizzo et al. found that vegetarians and those who rarely ate meat had a lower prevalence of the metabolic syndrome (MetS) when compared to non-vegetarians. These new results were based on a random sample of the AHS-2 population.



Adventists traditionally have low intakes of alcohol and refrain from smoking, two factors that are associated with the development of the MetS. Further analysis showed that vegetarians had the lowest risk of having the MetS even after adjusting for sex, ethnicity, alcohol intake, smoking, physical activity, and dietary energy intake. The results suggest a vegetarian dietary pattern can play a favorable role in lowering the risk of the MetS and can have a beneficial role in preventing diabetes and cardio-metabolic diseases. These results have been published in *Diabetes Care*.

cholesterol. Your blood pressure also goes up. All of this sets the stage for a higher risk of heart disease.

What Can I Do About It?

Avoiding fat build-up around your waistline is very important. Watch your calorie consumption. To do that, focus on foods that have lots of water and fiber in them, like fresh fruits and vegetables, while limiting the amount of high-fat and refined foods, which are rich in calories.

Exercise can help you get rid of the belly fat that causes the MetS, even without losing weight. If you already have the MetS, by making these changes and losing the fat around your middle, you can often go back to normal lab values and lower your risk of developing diabetes and heart disease.

Michael Orlich, MD, is an AHS-2 Research Fellow.

Religious Participants Report Better Health

By Jerry Lee



“Individuals who engaged in secular activities on Sabbath had poorer reported physical health.”

We know from previous research that people who attend church live longer. What is not as clear is why this occurs. Early researchers thought it might simply be that church attenders take better care of themselves. They are less likely to drink and smoke, and they are more likely to exercise. However, a healthy lifestyle is only part of the story.

In the first Adventist Health Study, we looked only at people who were healthy to begin with. Lifestyle predicted who lived longer, but even taking lifestyle into account, those who attended church still lived longer than those who did not.

The Adventist Religion and Health Study is funded by the National Institute on Aging to gain insight into the religion and health connection. In 2006 and 2007, 10,988 of you filled out a questionnaire about your religious beliefs and practices, stressful life experiences, psychological characteristics and social life. A smaller group of you who lived in Southern California gave blood and urine samples, did physical performance testing (e.g., grip strength) and memory testing, and allowed us to measure blood pressure, weight, body fat, and waist and hip circumference. Last year we sent out a second questionnaire to 7,000 participants to see

how responses had changed. We just completed a second set of clinics to measure physical and memory changes in the Southern California participants.

We have learned some interesting things. Overall, Adventists report better physical and mental health than comparable non-Adventists. In addition:

- The advantage Adventists have over non-Adventists on mental health is bigger in older age groups than in younger age groups.
- Not surprisingly, divorced individuals had more depressive symptoms than non-divorced individuals but divorced individuals who used positive religious coping (for example, said they looked to God for strength) had fewer depressive symptoms than those who did not use positive religious coping.
- Individuals who experienced childhood poverty are more religious. However, childhood poverty also relates to more abusive and conflictual families in childhood, particularly in White rather than Black participants. Those who experienced an abusive home as a child are less likely to be religious.
- Religious individuals have less negative emotions and those who experienced an abusive

home have more negative emotions. These negative emotions predict worse physical health.

- Individuals who had experienced sexual trauma or physical abuse were more likely to report a diagnosis of fibromyalgia, and those with physical abuse reported experiencing the most pain from their fibromyalgia.
- Individuals who engaged in secular activities on Sabbath had poorer reported physical health. Those who said Sabbath relieved tensions and promoted feelings of calm and peace reported better mental health.

So far, four papers have been accepted for publication and at least 12 papers have been presented at professional meetings. Now we are moving into our most interesting phase — finding out how religious beliefs and practices as well as psychosocial and biological factors contribute to later mental health, physical health, hospitalizations, and mortality. With your continued participation, we hope to understand how religious life can lead to a healthier and happier life. Thank you for all of your support.

Jerry Lee, PhD, is Principal Investigator of the Adventist Religion & Health Study.

Growing a New Lifestyle

One Seed at a Time

By Jennifer Frehn

Members at two California Black Seventh-day Adventist churches will soon gain green thumbs as part of a community garden project put forth by AHS-2.

Patti Herring, associate professor for health promotion and education at Loma Linda University (LLU), and her students will help the San Bernardino 16th Street SDA Church and the Juniper Ave SDA Church develop plots of land to grow their own fruits and veggies.

“Community gardens are the wave of the future,” said Dr. Herring, who noted the project is on target with First Lady Michelle Obama’s “Let’s Move!” campaign, part of which is encouraging access to healthier foods.

Research shows that lifestyle diseases such as obesity and diabetes disproportionately affect Blacks/African Americans. Part of AHS-2’s goal has been to determine why this is the case, then to put that information to use. Funded by a grant from the U.S. Department of Agriculture, the garden project brings two key factors of preventing some lifestyle-related diseases, shown to be a challenge in these communities: access to fresh produce and safe outdoor activities.

“I promised we were not just going to come into the community and take, take, take data and then they wouldn’t hear from us again,” Dr. Herring said. “This was a way for us to give back so we could improve their health and quality of life.”

“We have so many studies that show that Blacks have higher rates of this and that. From the outside, it looks like we’re not trying. We want to show that there are communities that are actively trying to improve health.”

To prepare, Dr. Herring visited both churches and gave them their AHS-2 “report card” showing what percentage of the church members who are in the study had reported diabetes, high blood pressure, high cholesterol, etc. The report also stated the AHS-2 members’ Body Mass Index (BMI), diet and lifestyle. Dr. Herring showed a video on the “Blue Zones,” a book highlighting Loma Linda as one of five places where people tend to live longer.

“As soon as the video stopped playing, members at the churches beamed,” said Dr. Herring, who described how the church members were motivated by the national coverage of the Adventist health message. “They are extremely excited about the community garden.”

AHS-2 will have a demonstration plot at each site to serve as an example. Church leaders will also tend a plot. The remaining plots will be given to church families, who will recruit non-Adventist families in the community to share the space and join in health activities.

“There was definitely a lot of positive response for doing anything that would involve the community or church unity,” said May Wang, an LLU health education

MPH student involved in the project.

Activities will include health sermons, followed by potlucks and health education classes taught by LLU graduate students. There will also be a clinic set up to give health appraisals that include measuring blood pressure, height, weight, BMI, cholesterol and glucose levels. Students will be recording a step-by-step process for these health crusades and gardens that can be repeated in any church. To Dr. RoWandalla (Candi) Dunbar, the health ministries director for the 16th Street Church, these activities will send a significant message.

“We have so many studies that show that Blacks have higher rates of this and that,” Dr. Dunbar said. “From the outside, it looks like we’re not trying. We want to show that there are communities that are actively trying to improve health, and that we are willing to make those changes to be healthier so we can be soldiers for Christ. I think it’s important for all of us, no matter what age or health level.”

Stay tuned for U.S. regional BMI levels for Black/African American AHS-2 participants, available soon at adventisthealthstudy.org



First Two: Members at Juniper Ave SDA church (left) and 16th Street SDA church, both in California, are excited to begin community gardens.



Report 2010/2011

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Progress in AHS-2 *(Continued from page 1)*

institutions often fare best.

Nevertheless, we are pleased to announce new funding by the World Cancer Research Fund and the U.S. Department of Agriculture. A large grant application is also under review at the National Institutes of Health and has received an excellent score. We are hopeful it will be funded.

Home Base: Loma Linda University benefits from AHS-2 in many ways. The study provides high-quality professional experience for carefully selected doctoral students and post-doctoral fellows. These scholars come from several schools (School of Public Health, School of Medicine, School of Science and Technology), and some from overseas. The study then benefits from the enthusiasm of the students, their good ideas, writing and analyses.

So, although you hear from us only a few times each year, there is much activity here at headquarters. We are presently a small team, but with most

“Although you hear from us only a few times each year, there is much activity here at headquarters.”

of the computer files checked and double-checked, and our surveillance for new cancers well underway, the study is poised to move ahead strongly. We are counting on your continued participation and support. Thank you again for completing the questionnaires you receive every two years.

Wishing you much of God's blessing for this year.

Gary Fraser, MD, PhD
Director of the Adventist Health Studies

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