

Dear AHS-2 Member,

Greetings from the Adventist Health Study-2! By God's grace we have completed a milestone. This is the 10th annual newsletter and thanks to your support, the study is still going strong and attracting the attention of major news outlets and many high impact journals, such as Time.com and The Wall Street Journal. Members of our AHS team have won prestigious awards. Michael Orlich won a poster competition at The Society for Epidemiologic Research (SER) for his poster on Vegetarian Dietary Patterns and the Risk of Colorectal Cancer. Nicole Gatto received the Governor's Environmental and Economic Leadership Award (GEELA) for her work in childhood obesity, and Sherma Charlemagne-Badal received a 1.158 million dollar award to improve health equity by increasing access to health care.

Like Jabez in 1Chronicles 4, the Lord is increasing our territory. We are actively expanding the focus to disease end-points beyond cancer. Several grant applications have been submitted to the National Institutes of Health (NIH) (our main funding agency). However, their funds are very limited with recent budgetary cuts, and the process is highly competitive. But we are confident that with persistence we will succeed. This expansion of focus has meant that the study now includes investigators from other Schools at Loma Linda University, aside from the School of Public Health, although being an epidemiologic study it will probably always have its major base here. We welcome active

investigators from the Schools of Medicine (basic science and clinical professors), Dentistry and Behavioral Health.

Remember the battle where the Israelites were winning as long as Moses kept his arm raised high? Pretty soon he got tired and Aaron had to help him hold up his arm. You are our Aarons. Completed surveys help us to raise the standard and win the battle against disease. Each of your returns is significant, and we are very grateful for your continued commitment to helping our study take the health message to the world.

As promised, you will find in this newsletter some of our latest findings. Unfortunately, for a few years now our current funding has been inadequate to allow us to contact you with the regularity that would be ideal. We hope to be able to do much better in terms of mail communications, email communications (but we do need updated email addresses) and even with regular phone contacts in the future. If you have moved and/or changed your phone number, please call us to update your information so that

we can stay in touch. Our phone number is 1-800-247-1699 or you may email us at ahs2@llu.edu.

Thank you again for being a faithful and constant supporter of the Adventist Health Study-2.

Patti Herring, PhD, RN

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LOMA LINDA UNIVERSITY
HEALTH

BMI: Weighty Matters

What does it mean to be overweight or obese? If you have extra body weight you are considered overweight. This extra weight can come from muscle, bone, fat and/or water. Obesity means having a large amount of extra body fat, which is calculated by a customary measure referred to as Body Mass Index (BMI). You are considered obese if your BMI is > (greater than) 30 kg/m².

In the AHS-2, we examined the relationship between obesity and longevity among our Black study members during the first six years of our study. We found that:

- Black women with a BMI greater than 33.8 and men with a BMI greater than 30.8 experienced a significant decrease in life-expectancy of six years.
- Data analysis identified that this obesity-related risk extended at least through 85 years in men, and 90 years in women.
- In never-smoking church members, obesity (a BMI > 30) was a significant risk factor for death compared to normal weight church members who had lower BMIs (18.5–24.9).

What are the implications of our finding for an aging population of U.S. Blacks? From the standpoint of translation, a notable finding, from the analysis is that the non-obese who experienced a six year survival advantage tended to follow a plant-based diet pattern and engage in vigorous exercise at least four times a week. The plant-based diets that helped them to maintain this advantage were labeled as lacto-ovo vegetarian, pesco-vegetarian (i. e., fish) and vegan.

We need to continue studying the benefits of vegetarian diet patterns in Black Adventists, and we need to look closer at their traditional food choices, the effects of these food choices on their body weight, and on their BMI. Early on in our Study we investigated the traditional foods eaten by Black Adventists in the South. In this study we identified Southern and Caribbean diet patterns that introduced a wide range of plant foods into the diet. One of the most frequently consumed foods in these diet patterns was legumes, with red beans being most prominent. Southern-influenced dishes gave rise to frequent consumption of turnip greens, collard greens, salads, okra, corn, tomatoes, Swiss chard, cauliflower, carrots and peas. Caribbean-influenced dishes further widened the range of plant foods (i.e., cassava, breadfruit, dasheen leaves [“callaloo”], tamarind, pawpaw fruit, sorrel) consumed. Foods such as legumes, tomatoes and green salad are associated with lower rates of cancer and/or mortality in Adventists.

How can you reach and maintain a healthy weight?

- Talk to your health care provider if you are concerned about your BMI; and follow his/her recommendations for safely losing weight and for increasing your physical activity based on your health status.
- Follow a healthy diet, and if you are overweight or obese, if your doctor approves reduce your daily intake by 500 calories for weight loss.
- Increase your physical activity.

Calories IN = Calories OUT: Means maintaining an energy balance in order to lose weight, and to maintain the weight loss.

- The amount of calories you get from food and drinks (Calories IN or Energy IN) should be balanced with the calories your body uses for various everyday bodily functions like digesting your food or breathing. Taking the stairs instead of the elevator and being physically active increases your Calories OUT or Energy OUT.

Remember over time:

- The same # of Calories (energy) In and same # of Calories (energy) Out = Staying the Same Weight
- More calories (energy) IN than calories (energy) OUT = Weight Gain
- More calories (energy) OUT than calories (energy) IN = Weight Loss

Remember: You do not have to worry about maintaining an energy balance every single day. What is important is a consistent balance over time that will help you to maintain a healthy weight.





Vegetarian Dietary Patterns and the Incidence of Prostate Cancer

Prostate cancer is considered the second most common cancer among American men and a disease with one of the highest health care costs. In 2010, medical costs associated with prostate cancer reached about \$12 billion. We believe that lifestyle and diet play an important role in cancer prevention. However, the relationship between diet and prostate cancer remains inconclusive.

In AHS-2, we find, after adjusting for factors such as age, race, family history of prostate cancer, education, screening for prostate cancer and calorie intake, that a vegan diet seems to provide a protective effect on the risk of prostate cancer when compared to subjects subscribing to a non-vegetarian diet. These findings support conclusions from an experimental study in men with localized prostate cancer where a lifestyle change that included a low-fat, soy-supplemented vegan diet plus an exercise program was associated with 70% reduction of prostate cancer progression to a more advanced disease stage, after one year of follow-up. A vegan diet is not defined by what it incorporates, but rather by what is omitted. Compared to non-vegetarians, Adventist vegans are found to consume less fat, protein, zinc, calcium, vitamin D, vitamin E,

sodium, phosphorous, but they also eat more carbohydrate, fiber, polyunsaturated compared to saturated fat, vitamin C, folate, B12, β -carotene, potassium, magnesium and plant-derived iron levels. There are various beliefs on which food(s)/nutrient(s) may be protective. There is still more to explore. In the meantime, following screening recommendations according to the American Cancer Society, incorporating a plant-based diet, avoidance of alcohol and smoking as well as regular physical activity would help to prevent this cancer.

From the Adventist Health Study-1 we know that men who drink soy milk at least once per day are 70% less likely to be diagnosed with prostate cancer and that eating dried fruit, tomatoes and legumes can also be important for prostate health. But, although Seventh-day Adventists have comparatively low rates of most cancers, prostate cancer risk is not lower for SDAs.

Submitted to the American Journal of Clinical Nutrition.
Tantamango-Bartley, Y., Knutsen, S., Jacobsen B., Fan, J., Beeson L., Sabate, J., Hadley, D., Jalcedo-Siegl K., Pennicook, J., Herring, P., Butler, T., Bennett, H., and Fraser, G., "Are Vegetarians Protected against Prostate Cancer?"

Is There a Relationship Between Going to Church and Better Health?

You might be wondering: Isn't it enough to — not smoke, drink little or no alcohol, get at least seven to eight hours of sleep each night, eat regular meals (especially breakfast), maintain your recommended weight, engage in regular physical activity, drink at least eight, 8-ounce glasses of water every day, and get plenty of fresh air and sunlight? What about adding going to church to this list?

Many people find comfort in not only believing in the principle that if you “Let go, and let God.” take care of life stresses, then your overall quality of life will be better. So, what do the experts report about this?

A Religion and Health Study was conducted at Loma Linda University among Adventist Health Study-2 participants between 2006 and 2011. This study helped researchers to answer such questions as “Do people who are more religious, and who report experiencing a lot of stress in their lives, report less disease and illnesses when asked five years later (in 2011):”

In regard to this question researchers discovered a number of interesting findings.

1. The participants in the Study reported better mental health, better physical health and they were experiencing a better quality of life than the average American. However, this may be due to how the researchers selected the people to participate in this Study. The study participants mainly attended Adventist churches. Researchers found also that while mental health was better for the average Adventist than for the average American, that difference was greater in older adults.

2. The participants who were divorced in the last five years, not too surprisingly, were more depressed than those who were not divorced. However, the difference was much smaller for those individuals who used positive religious coping.

Positive religious coping is:

- Having a relationship with God and including Him in helping you solve your problems. This is aided by a belief that you have a caring and powerful God in your life, who is always there for you.
- Believing that your problems are part of a divine plan, or are given to you as an opportunity for growth.
- Seeking spiritual comfort from God, through prayer or other devotional practices. This type of coping had an inverse association with depression.

3. The researchers also found that couples who were of the same religion reported that they were more satisfied in their marriages.

4. Another finding is that individuals who experienced poverty in their childhood reported being more religious, and therefore stayed connected to their religious beliefs when they became adults. They also reported using their religious beliefs to cope with life's stressors. However, the individuals who experienced childhood poverty and also experienced abuse were less likely to be religious. And they had more negative emotions.

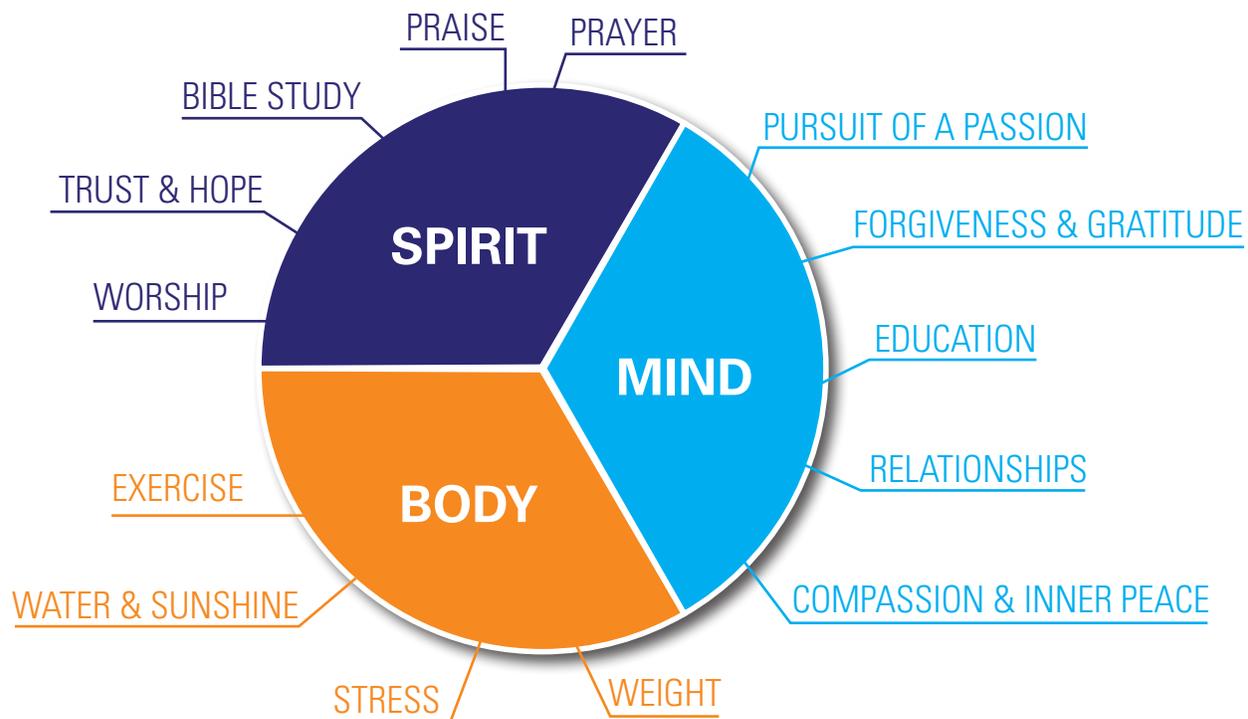
Thus, religious individuals reported less negative emotions, and those who were less religious reported more negative emotions. These negative emotions also predicted worse physical health.

5. Individuals who engaged in secular (or everyday activities) on the Sabbath, reported poorer physical health than those who reported refraining from everyday activities on the Sabbath. Those individuals who reported that the Sabbath relieved their tensions and promoted feelings of calm and peace reported better health than those who did not observe the Sabbath.



<http://www.llu.edu/public-health/health/adventist-religion-health.page> (Lee, J., et al. (2008). Cohort Profile: The biopsychosocial religion and health study (BRHS), International Journal of Epidemiology 2009; 38:1470–1478.)

The Body: Only One Piece of the Pie



How Well Did You Really Remember?

When investigating the possibility that diet affects the risk of cancer, we must consider the possibility that it was diet sometime in the past that is more important than the current diet. Evidence suggests that cancers develop over long periods of time. If we ask people about their dietary habits during earlier decades of life, how well do they really remember?

We could test this! About 5,600 members of the AHS-2 study were also part of the older AHS-1 study 37 years before and told us in 1976 what they preferred to eat. We could now ask them to recall how they used to eat around that time period and compare this with what they told us back then. We decided to concentrate on a small number of foods that were necessary to categorize people as vegans, lacto-ovo-, pesco-, semi- or non-vegetarians. We could also do this with a much larger number of AHS-2 members over a shorter period of about five years, by comparing what study members told us when they first enrolled in AHS-2 with how they now remembered their original dietary habits (on average five years before) in a more recent questionnaire.

Perhaps surprisingly, the results were very encouraging as memories were accurate enough over both the 35 year and

the five year periods to quite reliably place the persons who were originally lacto-ovo-vegetarians or non-vegetarians in their correct original categories. Interestingly, those who were originally lacto-ovo-vegetarians (but at the lower end of dairy/egg consumption) had a tendency to recall themselves as having been vegan. Similarly, some who had originally actually been non-vegetarian but who were at the lower end of meat consumption now tended to remember themselves as either pesco-vegetarians (no meat, only fish) or semi-vegetarians (meats less than once weekly but more than once monthly).

Thus these mis-rememberings “contaminated” results of those who correctly remembered themselves as vegan, pesco- or semi-vegetarian. But the errors were relatively small as the “mis-rememberers” were people who tended to have been the smaller meat or dairy eaters but who recalled their previous habits rather more favorably than they actually had been (from a vegetarian perspective!). Thus we conclude that we can probably usefully use recalled data about vegetarian habits from long ago to provide approximately correct results.

I'm Nuts About Almonds

Many studies have established a connection between the frequent eating of small amounts of nuts and lower rates of heart disease. Individuals eating a handful of nuts on a daily basis experienced a lower rate of heart attacks. The relationship between nut eating and healthier hearts continues to be supported with the most recent research. Studies have examined the effects of a number of tree nuts including walnuts, pecans, macadamias, pistachios and almonds.

Two ounces of almonds a day keep “bad cholesterol” away.

The amount of cholesterol, and especially the amounts of “bad” cholesterol in one’s blood, has a well-documented effect of lowering one’s chances of having a heart attack. For example, Loma Linda University scientists recently published a study that showed that the eating of almonds reduced both total cholesterol and low density cholesterol (“bad” cholesterol) in serum lipids in the blood of a group of adult volunteers. The volunteers added to their diet, on the average, about two ounces of almonds per day for 24 weeks.

How much is an ounce of almonds? Some experts suggest this easy and convenient way of measuring an ounce of almonds — by counting 1-2-3. One ounce of almonds, which is about 23 almonds, or a handful of almonds. If you like measuring your food, you could fill a ¼ cup, or fill an ice cream scoop or even a small baby food jar which will measure one ounce. Of course, two ounces would be 46 almonds.

There has been some concern expressed about the fat contained in almonds. Would eating a small amount of almonds every day result in weight gain? Loma Linda researchers studied this question. The result was that eating about two ounces of almonds every day over a period of one year did not lead to significant changes in body weight. One interesting finding of the study is that overweight women actually lost small amounts of weight. An explanation of this appears to be that the additional energy from the calories from the almonds results in reduced intake of other foods.

The fat in almonds does not contribute to weight gain.

Scientists at the Agricultural Research Service of the United States Department of Agriculture have discovered that almonds provide about 20% fewer calories than had been previously thought. The change in understanding came about because of the use of a new method of determining the number of calories from almonds which are actually absorbed during digestion. This number turns out to be about 20% less than the total number of calories contained in the almonds. Interestingly this characteristic of almonds is not widely shared with other nuts. For example, a similar study of pistachios determined that they contributed 5% more calories due to how they are absorbed than was previously thought. The reason for this difference is that the fat in almonds is incompletely absorbed during digestion because the natural cellular structure in almonds encapsulates the fat.

Jaceldo-Siegl K, Batech M, Sabaté J. (2011) “... cholesterol-lowering effects of almonds in free-living individuals”. *Nutr Metab Cardiovasc Dis*.

Heart Healthy Recipes

SONOMA TOFU SALAD

(Dr. Phil 20/20 Diet: Turn Your Weight Loss Vision into Reality)

Chop 2 tablespoons raw or dry-roasted unsalted walnuts; set aside.

Whisk 2 teaspoons of Dijon mustard with 1 teaspoon of water,

1 teaspoon lemon juice,

2 teaspoon of olive oil, and

¼ teaspoon of minced garlic

Add crumbled tofu (1/5) of a 14 ounce package extra-firm tofu),

1 tablespoon of raisins and the chopped walnuts.

Serve with two rye crisps.



Adventist Health Study 2

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Did You Know...?

NUTRITION

- Honey is the only natural food which never goes bad?
- Coca-Cola originally contained cocaine?
- Almonds are members of the peach family?
- An egg contains every vitamin except vitamin C?
- A banana contains 75% water?
- Rain contains vitamin B12?
- Avocados have the most calories of any fruit?
- The average person falls asleep in seven minutes?
- Your tongue is the fastest healing part of your body?
- Women's hearts beat faster than men's?
- All the blinking in one day equates to having your eyes closed for 30 minutes?

MIND & BODY

- Money is the number one thing that couples argue about?
- 11% of people are left handed?
- The average human brain contains around 78% water?
- Your brain uses between 20 - 25% of the oxygen you breathe?
- The average person laughs 10 times a day?

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Word Scramble Key (in order): blood, pressure, high, vegetarian, diet, weight, cholesterol, risk, genetics, lipids, exercise, fitness, sodium, eggs, watch, family, blacks, low salt, systolic, diastolic.
Phrase: How is your blood pressure?