

Dear AHS-2 Member,

This year — it hardly seems possible — even the very last enrollees to our study have now been study members for nearly 10 years! Because so much time has passed, we once again need to document new dietary information from all study members. After all, people do change their eating habits over time (see the article in this newsletter to learn more). These changes in diet may affect the risk of cancer and other diseases. So, in order to correctly connect diet to the risk of these diseases, we need to have updated dietary information.

The last 10 plus years have also brought major changes to the way many of us routinely communicate, with greatly increasing use of the internet and electronic communications. It turns out that these changes can be very helpful to studies like AHS-2. One of the most expensive aspects of the study is mailing and delivering bulky questionnaires, paying for their return mail, then using an expensive optical scanner to transfer the penciled questionnaire responses to a computer file, and finally dealing with the problem that (on average) about 5 percent of responses to any given question had been missed by study subjects. Online questionnaires offer huge cost savings, can be easier to use and can have features that help avoid missing data. For all these reasons, we hope to offer online questionnaires soon, and we hope that many of you will be able to use this helpful technology. This will also provide an easy and cost-effective way of re-opening enrollment to additional church members who missed joining AHS-2 10 years ago. We hope to grow our study, make communication easier and more efficient, and keep costs down.



We still hope for additional support from the National Institutes of Health, as our research continues. In the last year, we have published several more reports in medical journals, some of which have attracted a good deal of attention in the popular press, as highlighted later in this newsletter. Over the last 10 years, the study has been a training ground for young (mainly) Adventist researchers from countries such as the U.S., Brazil, Korea, Kazakhstan, France, St. Lucia, Peru, Sweden, Mexico and the Czech Republic. We hope that this will continue.

As always, we are most grateful for your continued study membership and participation. It does take a little effort and a spirit of public service, but these create benefits for our church, Loma Linda University and the health of the nation. Thank you!



Gary E. Fraser, MD, PhD

*Principal Investigator, AHS-2
Loma Linda University
School of Public Health*



IN THIS ISSUE

- A Dairy Conundrum
- Breakfast or Supper?
- We are What We Eat
- AHS-2 in the News



LOMA LINDA
UNIVERSITY
HEALTH

A Dairy Conundrum: Does it Decrease the Risk of Colorectal Cancer?



In the Adventist tradition, dairy foods are used by most, though with some caution. 5-10 percent of Adventists have decided to be vegan and renounce all dairy foods. Even Adventist lacto-ovo vegetarians, on average consume only 60 percent as much dairy as non-vegetarian Adventists. In fact, Black Adventists overall also consume only about 60 percent as much dairy as White Adventists — we think in part because some have a familial intolerance to lactose, the primary sugar in dairy foods. It causes them some mild bowel upset.

Dairy is an animal product and it contains saturated fats, generally thought to be less healthy. But it also contains much calcium and other potentially helpful chemicals such as butyric acid, lactoferrin and conjugated linolenic acid. There is not enough space to talk more about these here, but these suggest that the risk of some diseases with dairy consumption might be either higher or lower. Here

we present results only for the risk of colorectal cancers, that is cancers of the colon and rectum (regions of the large intestine, sometimes considered together, sometimes separately). Colorectal cancer is the third most common cancer in North America.

In AHS-2, we compared study members who were the highest dairy consumers (top 20 percent) to the lowest (bottom 20 percent). In a similar fashion, we also compared the highest and lowest calcium consumers, of course adjusting for many other factors. What we found was interesting. The high dairy consumers had about 70 percent less rectal cancer than the low-consumers, but there was little or no difference for colon cancer. Most of the association of dairy with rectal cancer seemed to come from differences in milk consumption. When we looked at calcium, the high calcium consumers had about 45 percent less colon cancer than the low calcium consumers, but calcium had little association with rectal cancer. Calcium supplements and dietary calcium seemed to have broadly similar association with the risk of both colorectal cancers combined.

So calcium appears to protect against colon cancer, but perhaps some other dairy component may protect against rectal cancer. Stay tuned as we will in the future be telling you of potentially higher risk for another cancer when consuming more dairy. It may be that different people may benefit from different advice regarding dairy, depending on family history and other risk factors. Life — and diet in particular — is complicated!

Diets of Adventists Throughout a Life-time

It is not surprising that recently published analyses show that a person's dietary pattern (vegan, lacto-ovo vegetarian, pesco-vegetarian, non-vegetarian) may change during a whole lifetime. Such changes are most likely to occur at ages in the 20's and 30's, and may then be either in the direction of more animal products or to less animal products. By ages 50's to 60's, fewer people are changing, and interestingly the changes that do occur are then heavily in favor of less animal products. So, later in life

non-vegetarians have a tendency to become lacto-ovo-vegetarians, and lacto-ovo vegetarians have a tendency to become vegan. Despite this moderate level of changing, most current non-vegetarians and lacto-ovo-vegetarians have followed those patterns for their whole life and will continue in that way. Most vegans have switched earlier from some other pattern and fewer than 1 percent of Adventists are lifetime vegans.

Breakfast or Supper? Does it Matter for Body Weight?

It has been a long-held Adventist tradition to prefer two meals rather than three each day — by omitting supper or eating only a light supper (see *Counsels on Diet and Foods*, pages 158 and 173). This interesting, 150-year-old counsel had more in mind than effects on body weight, but that is our focus here.

The number of meals per day that are optimal for weight control has been controversial among health professionals, with some suggesting benefits for 5-6 meals per day. Our recent work in AHS-2 has produced clear results showing that better weight control (on average) was experienced by those study members who ate fewer meals, who consumed most calories earlier in the day, and who had a longer overnight fast (see figure below).

It was also interesting that, irrespective of meal patterns, our AHS-2 subjects as a group tended to gain weight year after year before age 60 but then lose weight each year after age 60. To be clear, we are here talking about very small year-by-year changes, but these do add up over the decades. So, given this underlying difference in weight change before and after age 60, what is the apparent practical effect of taking a good breakfast with a lengthy night fast as compared to eating more calories later in the day?

Those who ate most calories earlier in the day had less weight gain before age 60 and more natural weight loss after age 60. For instance, a man of height 5 foot 10 inches and weight 176 pounds at age 30 who eats most calories later in the day would be expected to gain weight to 192 pounds by age 60, then fall to 181 pounds by 80 years. On the other hand, if he ate most calories earlier in the day during his life, his weight would have only increased to 184 pounds by age 60, then decreased to 168 pounds by 80 years.

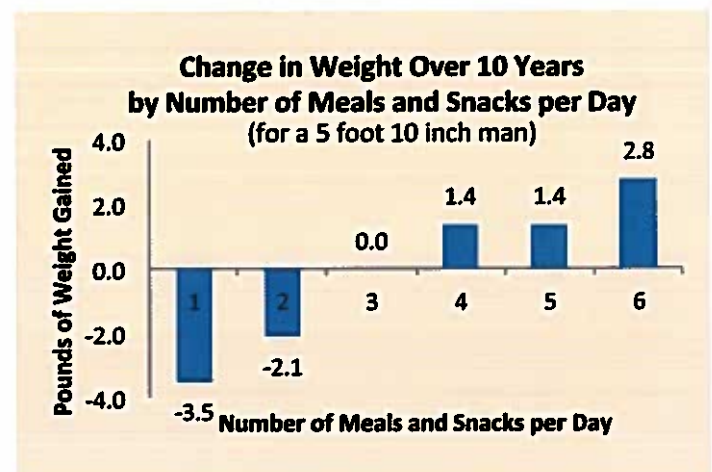
Remember that AHS-2 is a population study and thus spans all beginning weights and produces results that have been average experiences of the study population. It is true that a few elderly subjects would not want to lose more weight, but for most, overweight remains a problem in later years. Thus, across a whole population, the predicted reductions in body weight associated with fewer meals and a longer overnight fast could translate to substantial benefits in health experience. Also, bear in mind that factors other than meal number and timing may play a role, though we tried to take other factors into account.

These findings have received wide coverage by public media outlets, including a feature in the *New York Times*.



We are What we Eat!

A recent publication from AHS-2 carefully compared study members who ate smaller and larger amounts of a variety of nutrients, vitamins and minerals, then compared these to the amounts of these substances in body tissues and fluids such as blood, urine and fatty tissue (some of you who were selected will remember the needle required to get the fat!). Perhaps not surprisingly, we found that those who ate more of most of these substances had that reflected in their bodies. This was especially true of saturated fatty acids in fatty tissue, polyunsaturated fatty acids in fatty tissue, omega-3 fatty acids in fatty tissue; carotenoids, vitamin E, and vitamin B12 in blood; 1-methyl histidine (an amino acid from meats) in urine. Of course, it is likely that higher bodily concentrations of saturated fatty acids, and possibly meat products, would not be beneficial, whereas higher levels in the body of carotenoids (colorful chemicals from vegetables and fruits), vitamin E (an anti-oxidant vitamin) and vitamin B12, may be associated with better health.





Contact AHS-2 at 1-800-247-1699 or
Website: ahs2.com | Email: ahs2@llu.edu

Address Correction: Please correct any mistakes or changes in your name and address or fill in any missing information (such as a new email address) and return this completed panel to Adventist Health Study-2.

PLEASE PRINT CLEARLY

First Name	Middle Initial	Last Name
Street	Apt#	
City	State	ZIP/Postal Code
Country		
Email Address	Telephone	

AHS-2 is in the News!

People around the world are interested in results from your AHS-2 study!

In the past two years, findings from AHS-2 have been featured in newspapers, television news reports, documentaries, online news sites and other media outlets. Here are some of the media outlets and recent interviews:

- US News & World Report
- New York Times
- Riverside Press Enterprise
- LA Times
- Wall Street Journal
- The Telegraph (U.K.)
- Daily Mail (U.K.)
- New Zealand Herald
- Palo News (Greece)
- Yahoo News Hong Kong
- Blasting News (Italy)
- Delish

- Adventist Review
- Der Spiegel (German) book interview
- Belgium TV news interview
- Oscar award winning film team documentary
- CBS 2
- MSN
- Hope Channel
- NPR radio interview

In addition, AHS-2 researches have been invited to give several professional presentations, to include:

- AIPro (large European healthy food manufacturer) 25th anniversary conference
- VEGMED conference keynote address, Free University of Berlin
- Memorial lecture, National Cancer Institute, Washington D.C.