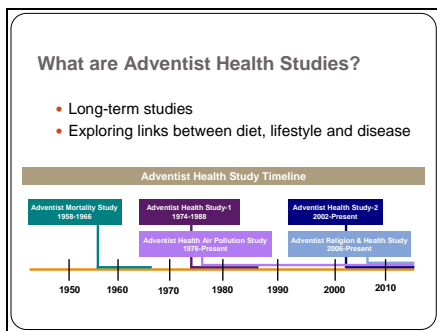


Slide 1



Welcome to this presentation on Adventist Health Studies.

Slide 2



To begin, what are Adventist Health Studies? Adventist Health Studies are long-term health studies exploring the links between diet, lifestyle and disease among Seventh-day Adventists. So far there have been five studies conducted, three of which are still ongoing. The first study was the Adventist Mortality Study, from 1958-1966. Next is the Adventist Health Study-1, from 1974 to 1988. Out of that study came a sub-study called the Adventist Health Air Pollution Study, which is still active. The main current study is Adventist Health Study-2, which is examining Adventists across the U.S. and Canada. There is also a sub-study from AHS-2 that is focusing on religion and health, and this is also ongoing.

Slide 3



Some might wonder, "Why study Adventists?" Adventists are ideal for these types of studies because a majority do not smoke or drink. These are habits that can cause distortions in results, but because these habits are largely absent in this population, it makes studying the effects of other lifestyle choices much easier and clearer. In addition, Adventists have a range of dietary habits, from strict vegetarianism to a fairly typical American western diet. This means researchers can monitor the effects of a range of diets on a person's health.

Slide 4

Adventists: Famous for Longevity

- Adventists were shown to live longer than the general population
- Five behaviors were shown to increase life span by up to 10 years:
 - Not smoking
 - Eating a plant-based diet
 - Eating nuts several times per week
 - Regular exercise
 - Maintaining a normal body weight

Adventists: Famous for Longevity.
 One of the most widely-disseminated findings from Adventist Health Studies concerns longevity. In the first Adventist Health Study, conducted on California Adventists, it was found that on average, Adventist men live 7.3 years longer than other Californians and Adventist women live 4.4 years longer than other Californians. In addition, five simple health behaviors promoted by the church for more than 100 years were shown to increase life span by up to 10 years. These are: eating a plant-based diet, not smoking, eating nuts several times per week, getting regular exercise, and maintaining a normal body weight.

Slide 5

Adventist Mortality Study: 1958-1966

- Compared to other Californians, Adventists experienced lower rates of death for all cancers, including:
 - Lung cancer – 21%
 - Colorectal cancer – 62%
 - Breast cancer – 85%
 - Coronary heart disease – 66% for men, 98% for women

Now let's take a more detailed look at some of the past studies. The Adventist Mortality Study was conducted from 1958 to 1966 on 23,000 Adventist adults living in California. It was conducted at the same time as the American Cancer Society study of non-Adventists and comparisons were made for many causes of death between the two populations. Compared to other Californians, Adventists experienced lower rates of death for all cancers, including for lung cancer, colorectal cancer, breast cancer, and coronary heart disease.

Slide 6

Adventist Health Study-1: 1974-1988
Probable Beneficial Foods


- Nuts
- Whole grain bread
- Tomatoes
- Soy milk
- Fruits
- Legumes

Adventist Health Study-1 was conducted from 1974-1988 on 34,000 California Adventist adults. It revealed the beneficial effects of several foods. It was found that eating nuts several times per week reduced the risk of heart attack by up to 50%. Those eating whole grain bread instead of white bread had reduced non-fatal heart attack risk by 45%. Also, men who had a high consumption of tomatoes had a 40% reduced risk of prostate cancer and men who drank soy milk more than once daily had a reduced risk of prostate cancer by 50% or more. Fruit consumption appeared to reduce the risk of lung cancer, acting in addition to the benefits of not smoking. Legumes were also shown to reduce the risk of cancer.

Slide 7

Adventist Health Study-1: 1974-1988
Findings on Red Meat


- Red meat was associated with an increased risk of:
 - Colon cancer – 50%
 - Heart attack – 70-80%
 - Diabetes – 75%



There were also some important results found about the consumption of red meat. It was found that those eating red meat had a higher risk of colon cancer by at least 50%. They also had a higher risk of heart attack by 70-80%, though there is less of an impact in the elderly. Red meat consumption was also associated with a 75% increased risk of diabetes.

Slide 8

Adventist Health Study-2





Let's move on to Adventist Health Study 2, the current study. Now, how many of you are participating in Adventist Health Study-2? Would you please stand? We'd like to take a minute to recognize these individuals. Those standing are part of the 96,000 participants who have spent in total some 200,000 hours filling out lengthy questionnaires. Each and every participant is valuable to this study. They are what makes this study possible. Let's show our support and appreciation for their participation! **{applause}**.

Slide 9










Adventist Health Study-2: 2002-Present
Profile of Study Members

- 96,000 Adventists ages 30+
- 1,500+ over the age of 90
- 26.9% are Black/African American
- Mean age: 60.2



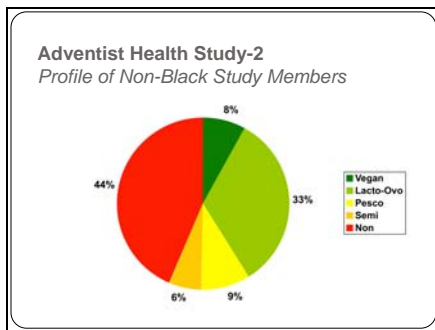
On the screen is a quick look at those who make up the current study. As we mentioned, it includes 96,000 Adventists from the U.S. and Canada. All 50 states in the U.S. and all provinces in Canada are represented. The study members are ages 30 and up, with more than 40 centenarians included at enrollment, as well as more than 1,500 participants over the age of 90. This is also one of the largest health studies of Black/African Americans, with 26.9% of the participants in that demographic. As such, it is specially positioned to help answer why Black/African Americans have a disproportionate amount of cancers and heart disease. Because one focus of this study is on the Black population, many of these slides will give statistics for both the Black and the non-Black participants.

Slide
10

Dietary Status			
	BEEF	POULTRY & FISH	DAIRY & EGGS
VEGAN	NONE	NONE	NONE
LACTO-OVO	NONE	NONE	
PESCO-VEGE	NONE		
SEMI-VEGE			
NON-VEGE			

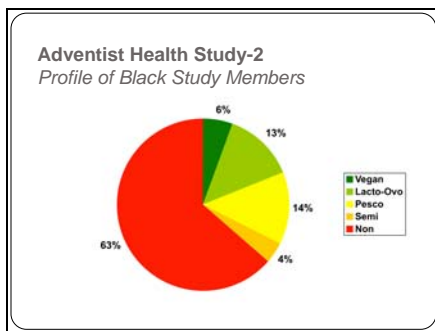
Let's now take a look at dietary status. Based on survey question results, study members were put into one of five dietary categories. As is shown, vegans eat no meat or dairy. Lacto-ovo vegetarians consume dairy, but no meat. Pesco-vegetarians consume fish and dairy but no meat. Semi-vegetarians consume red meat, poultry and fish, but less than once per week. And finally, non-vegetarians eat red meat, poultry, fish, milk and eggs more than once a week. It should be noted that vegans and lacto-ovo-vegetarians typically consumed more fruits, vegetables and legumes than those in the other categories. Additionally, lacto-ovo Adventist vegetarians typically are low-dairy vegetarians.

Slide
11



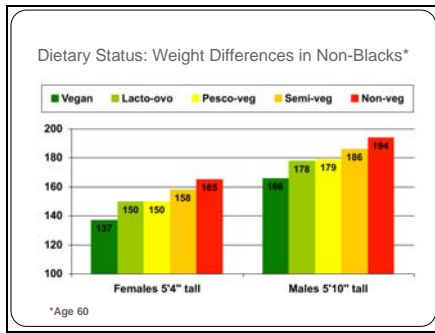
Here we have the breakdown of dietary status of non-Black study members. We see that 8% are vegan, 33% are lacto-ovo vegetarian, 9% are pesco-vegetarian, 6% are semi-vegetarian and 44% are non-vegetarian.

Slide
12



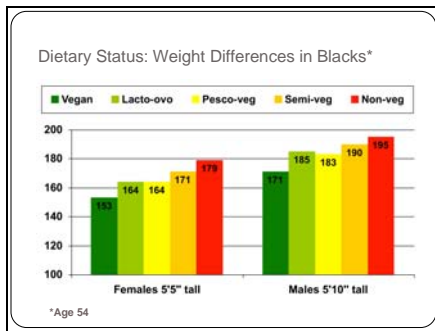
Here we have the breakdown of dietary status of Black study members. We see that 6% are vegan, 13% are lacto-ovo vegetarian, 14% are pesco-vegetarian, 4% are semi-vegetarian and 63% are non-vegetarian.

Slide 13



Next we have differences by weight and dietary status. This shows the **average** weight for non-Black females 5'4" tall, 60 years old and for non-Black males 5'10" tall, 60 years old. As you can see, there is a trend for weight related to diet. Vegans on average weigh about 30 pounds less than non-vegetarians.

Slide 14



Next we have differences by weight and dietary status for Black females, 5'5" tall, 54 years old and for Black males 5'10" tall, 54 years old. There is about a 25-pound difference between the weight of vegans and non-vegetarians, with vegans **on average** weighing the lowest.

Slide 15

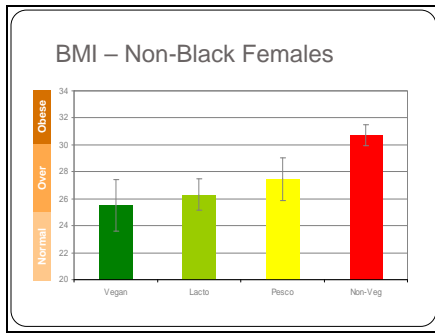
Body Mass Index (BMI)

$$\text{BMI} = \frac{\text{weight in kilograms}}{\text{height in meters}^2}$$

Normal weight = 18.5-24.9
Overweight = 25-29.5
Obese = 30+

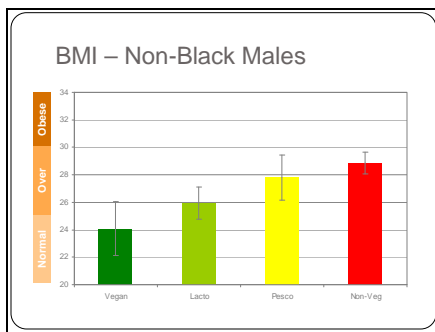
Now, how many of you have heard of the term Body Mass Index? Body Mass Index, or BMI, is your weight in kilograms divided by your height in meters squared. It is considered a good indicator of a healthy weight taking account of your height, and is used as a tool to assess general risk of health problems associated with body weight. A range of 18.5 to 24.9 is considered normal weight. A range of 25 to 29.5 is considered overweight, and a range of 30 and above is considered obese. There are several BMI calculators found online if you are interested in learning your own. Simply Google "BMI calculator." Now let's take a look at the **average** BMI of our study members.

Slide
16



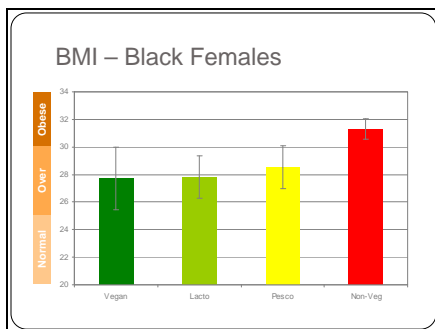
For non-Black female participants, we see the average BMI of each dietary category. The ranges of normal, overweight and obese are shown on the left. The little line at the top of each bar is called the confidence interval. For all slides in this presentation, these lines represent a 95% confidence interval. This means that researchers are confident that 95% of the time the average results will fall within this range. The category “semi-vegetarian” was not included for the following results because there were too few to obtain an accurate reading. As you can see, there is also a trend for BMI in relation to the dietary categories we **are** examining. As we will see, the closer one is to a plant-based diet, the lower the average BMI, even across race and gender.

Slide
17



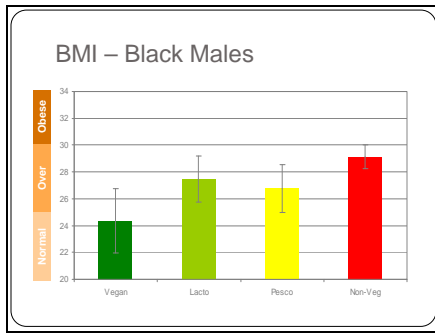
Next we have BMI for non-Black males. We see that vegans, on average, fall between a BMI of about 22 to 26. Lacto-ovo vegetarians fall between 25 and 27. Pesco-vegetarians fall between 26 and 29. And non-vegetarians on average fall between 28 and almost 30.

Slide
18



Now we have the average BMI for Black females. We see that vegans, on average, fall between a BMI of about 25 to 30. Lacto-ovo vegetarians fall between 26 and 29. Pesco-vegetarians fall between 27 and 30. And non-vegetarian Black females on average fall between 31 and 32.

Slide 19




And last we have the average BMI for Black males. Vegans, on average, fall between a BMI of about 22 to 27. Lacto-ovo vegetarians fall between 26 and 29. Pesco-vegetarians fall between about 25 and 28. And non-vegetarian Black males on average fall between 28 and 30.

Slide 20

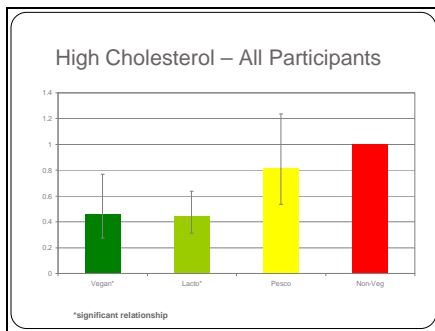
Dietary Status and Disease

- The closer participants were to being vegetarian or vegan, the lower the risk of:
 - Diabetes
 - High cholesterol
 - High blood pressure
 - Metabolic Syndrome



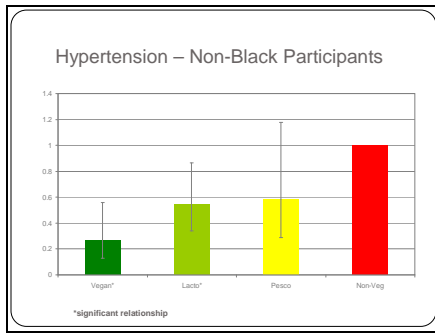
Now, in looking at dietary status in relation to **disease**, AHS-2 found that levels of diabetes, cholesterol, high blood pressure, and the metabolic syndrome all had the same trend – the closer you are to being a vegetarian or vegan, the lower the health risk in these areas. In the case of type 2 diabetes, its prevalence in vegans and lacto-ovo vegetarians was **half** that of non-vegetarians, even after controlling for differences in socioeconomic and other lifestyle factors. Additionally, those adhering to a vegetarian dietary pattern had 56% lower risk of Metabolic Syndrome compared to non-vegetarians. Let's take a look at a snapshot of related results.

Slide 21



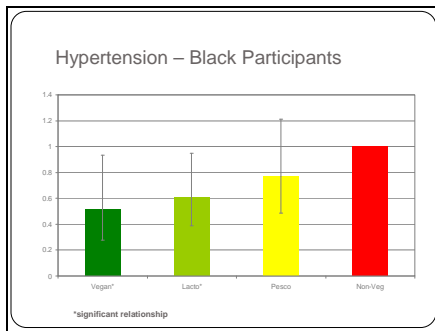
Here we have what are called odds ratios for high cholesterol of all participants. This shows the risk each group has of having high cholesterol compared to non-vegetarians. We see that vegans and lacto-ovo vegetarians have about half the risk of high cholesterol as non-vegetarians. All results with the asterisk were significant.

Slide
22



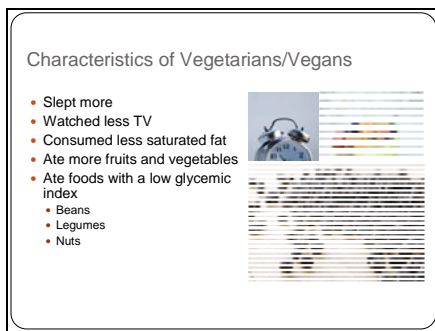
Now we look at hypertension in non-Black participants. Both the vegans and the lacto-ovo vegetarians had a significantly lower risk of having hypertension compared to non-vegetarians.

Slide
23



Next we have results for hypertension in Black participants. We see a clear trend here also, with vegans having the lowest risk compared to non-vegetarians

Slide
24




So we have seen that vegetarians and vegans have lower weights and lower risks of lifestyle diseases. What other behaviors do this group have in common that may account for these positive outcomes? It turns out vegetarians and vegans exhibited several lifestyle behaviors that may have a protective effect against disease. Compared to non-vegetarians, vegans and vegetarians slept more, watched less TV, consumed less saturated fat, ate more fruits and vegetables, and ate foods with a low glycemic index, such as beans, legumes and nuts. All of these characteristics are often associated with a lower risk of lifestyle diseases.

Slide
25

Physical and Mental Quality of Life

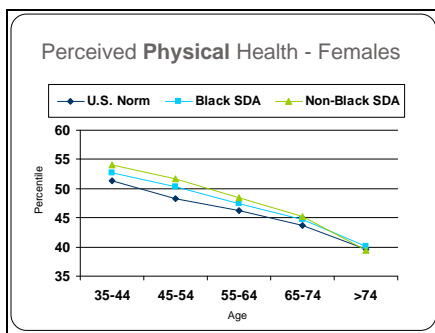
- Adventists report better quality of life than the U.S. norm
- Trend is particularly pronounced for mental health in older age groups



Now we will show some results from the Adventist Religion and Health study, conducted on 11,000 Adventists from Adventist Health Study-2. This sub-study showed that Seventh-day Adventists reported a better quality of life than the average American. How did they find this out? Participants were asked standardized questions about physical and mental quality of life. Any psychologists in the audience would recognize these questions as coming from the SF-12v2 scale. Examples of questions included are: “During the past four weeks, how much did pain interfere with your normal work?” and “How much time during the past four weeks have you felt downhearted and depressed?”

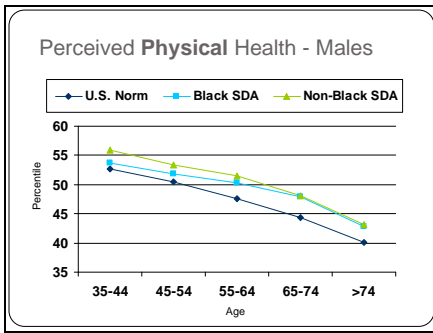
The results were then compared to results from a nationwide sample. Adventist study participants reported better physical and mental quality of life than the U.S. norm, in some cases by as much as 4.5 percentage points. As we will see, the trend was particularly pronounced for mental health in older age groups. Researchers have attributed this difference at least in part to the healthier lifestyle behaviors of Adventists compared to the general population.

Slide
26



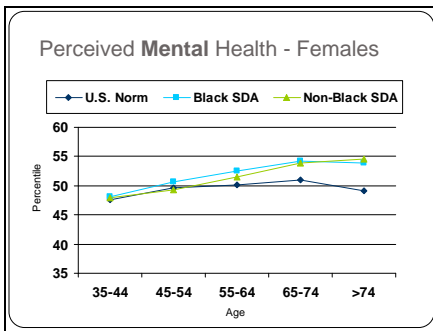
Here we have perceived **physical** health for **females** by race. For most data on these graphs, both Black and non-Black SDA participants were either at or above the U.S. norm.

Slide
27



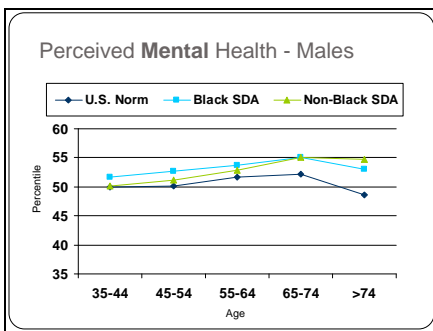
Next is perceived **physical** health for **males** by race. Although both the Adventist and U.S. norm decrease as age increases, the Adventists have a clear advantage.

Slide
28



And perceived **mental** health for **females** by race. Notice how the difference is significantly higher than the U.S. norm for the 74+ age group.

Slide
29



Here we have perceived **mental** health for **males**, also with a significant difference in the 74+ age group.

Slide
30

In Summary...

- The **health advantages** experienced by the more conforming Adventists over many years is remarkable.
- Vegans and lacto-ovo vegetarians have less **obesity**, lower **blood pressure/high cholesterol**, and fewer **lifestyle diseases**.
- The causes are not all understood, but dietary factors are clearly important.
- The vegetarian dietary habit is broadly protective. This is due **both** to the absence of meat and also the extra fruit, vegetables and nuts.
- The results of "acting" Adventist are open to all.

So what are some of the key takeaways?

- *The **health advantages** experienced by the more conforming Adventists over many years is remarkable. A more conforming Adventist would be someone who consumes little or no meat, exercises regularly, and includes many fruits, vegetables and nuts in their diet.
- *Vegans and lacto-ovo vegetarians have less **obesity**, lower **blood pressure and high cholesterol**, and fewer lifestyle diseases, such as **diabetes and metabolic syndrome**.
- *The causes are not all understood, but dietary factors are clearly important.
- *The vegetarian dietary habit is broadly protective. This is due **both** to the absence of meat and also the extra fruit, vegetables and nuts.
- *The results of "acting" Adventist are open to all.

Slide
31

What You Can Do...

- Reduce the amount of meat in your diet gradually and add more fruits, vegetables, beans and nuts.
- Avoid replacing animal foods by refined, sweet, fatty commercial products, even if from plant sources.
- Partake in regular moderate physical activity.
- Tell your neighbors!



After hearing all of this, what can you do?

- *Reduce the amount of meat in your diet gradually and add more fruits, vegetables, beans and nuts.
- *Avoid replacing animal foods with refined, sweet, fatty commercial products, even if from plant sources.
- *Partake in regular moderate physical activity.
- *Tell your neighbors!

Slide
32

For more information, visit
adventisthealthstudy.org



If you would like more information, including more fascinating and detailed study results, please visit adventisthealthstudy.org.

Thank you!