

MESA Air Investigator Collaborates with International Scientists

During the break between MESA Exam 4 and Exam 5, Professor Joel Kaufman from the University of Washington was invited to temporarily join a research team in Barcelona, Spain from late 2007 to mid 2008. Dr. Kaufman directs the MESA Air team, studying the relationship between air pollution and heart disease.

The work of the MESA study was of tremendous interest to researchers across Europe. In addition to presenting the MESA Air approach to European scientists, Dr. Kaufman worked with investigators to add an air pollution measurement component and a carotid ultrasound test, like those in MESA Air, to an ongoing study in Girona, Spain.

In 2008, the European Union launched a major new research project called ESCAPE (European Study of Cohorts for Air Pollution Effects), led by Dutch investigators, to add air pollution measurements to ongoing health studies in 17 European countries. Due to his experience, Dr. Kaufman was asked to be involved in the study's launch and remains a major adviser to the project.

Your participation in MESA and MESA Air is helping research be conducted using state-of-the-art scientific methods, and is paving the way for more understanding of the interplay between heart health and the environment both here and abroad. ♥

In August 2008, the National Institutes of Health awarded continuation contracts to the MESA centers until 2015! MESA is currently planning for its next major effort – Exam 5, which will begin in April 2010. Your continued participation is essential to the continued success of MESA. Thank you!

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How do the National Institutes of Health Fund Medical Research?

By Diane Bild, MD, MPH, MESA Project Officer

The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the primary Federal agency for conducting and supporting medical research. NIH is the nation's biomedical research agency - making important medical discoveries that improve health and save lives.

Composed of 27 Institutes and Centers, the NIH provides leadership and financial support to researchers in every state and throughout the world. NIH has over 18 thousand employees and generally provides approximately \$29 billion annually to support medical research. Recently, Congress provided an additional \$10 billion to NIH as part of the American Recovery and Reinvestment Act, to be spent over 2 years.

More than 80% of NIH funds are awarded to over 325,000 researchers in the form of grants. In general, researchers apply for NIH grants to support research projects, and the proposed ideas are reviewed by panels of independent scientists.

About 10% of the NIH budget funds nearly 6,000 scientists who are employed directly by NIH, most of whom work on the



Dr. Diane Bild
MESA Project Officer

NIH campus in labs and a hospital in Bethesda, Maryland. More information about NIH can be found at www.nih.gov.

MESA is funded through a set of contracts between the participating research organizations and the government. NIH con-

tracts support research in areas that are deemed to be high priority and/or that require coordination across groups for complex projects. NIH issues a "Request for Proposals," and organizations involved in scientific research compete for the funds, based on reviews from independent scientists.

In the case of MESA, the National Heart, Lung, and Blood Institute (NHLBI) sought advice from expert scientists about the next generation of population studies that should be done in the area of cardiovascular disease prevention and whether certain new technologies - cardiac computed tomography (CT) and cardiac magnetic resonance imaging (MRI) - were "ready for prime time" for use in large studies.

The study has improved our understanding of how subclinical cardiovascular disease develops and leads to clinical cardiovascular disease - particularly heart disease and strokes. ♥

Please watch your mailbox for a special newsletter describing new opportunities for genetic research in MESA!

Diet, Disease and MESA

By Jennifer Nettleton, PhD, University of Texas Health Sciences Center

In the past five years, several investigations have sought to better understand the relationship between diet and risk factors for diabetes and cardiovascular disease using data you have provided as a participant in MESA.

There are some general similarities across all these studies that show us how we should eat to be as healthy as possible.

In these studies, MESA investigators had to use scientific methods to study diet. Because we know that individuals do not eat single foods or single nutrients, several MESA investigators attempted to look at the overall dietary pattern of participants.

In nutrition research, this is referred to as dietary pattern analysis. It results in an estimate of the combination of foods eaten by groups.

Among the many advantages of this approach is that it allows us to make guesses about the nutrients a person has consumed based on the types of food they eat. For example, people who eat whole grains tend to also consume other foods that we consider to be healthy. This includes low-fat dairy and vegetables. Because people eat many different types and amounts of food, it is often difficult to make a clear connection between disease and the intake of a single food.

At the same time, we all know that

eating one healthy food along with an otherwise unhealthy diet will probably not have the same effect as eating that healthy food along with an overall healthy diet. A healthful diet is also more effective when you follow other healthy lifestyle practices, such as being physically active and regularly visiting your doctor.

The fruits of these studies (no pun intended!) have been many. Data from MESA show that persons who eat more whole grains, fruits and vegetables, low-fat dairy foods, and nuts and seeds have lower levels of cardiovascular disease risk factors and a lower risk of developing diabetes or cardiovascular disease.

In contrast, persons who eat high levels of processed foods, red meat, added fats and sugars, high-fat dairy foods (e.g., full-fat cheese), refined grains, and desserts have higher levels of cardiovascular disease risk factors and a greater risk of developing diabetes or cardiovascular disease.

Of course, as you consider which foods to eat, you should consider eating an amount of food that matches your body size and activity level. Eating more of anything will not be the answer to health if that change is not also off-set by eating less of something else (ideally, something less healthy!).

The MESA investigators who use the dietary data that you provided at the baseline examination are very grateful for your efforts and willingness to share information about your dietary habits. While we certainly encourage you to follow good dietary habits, we also greatly value your honesty when you complete questionnaires related to your diet (even if your diet is not so perfect—no one's is!). The accuracy with which you describe your regular dietary practices provides a sound foundation for our work.

So THANK YOU!!! We look forward to hearing from you again when you return for another MESA examination. ❤️



Atrial Fibrillation: Important to Research and Your Health

By Elsayed Z. Soliman MD, MSc, MS, Wake Forest University

One part of the MESA follow-up phone call that you may have noticed is when you are asked if you have been told by a health care professional that you have atrial fibrillation. What is atrial fibrillation? Why is MESA interested in this? How do you know if you have atrial fibrillation?

Atrial fibrillation, often referred to as "Afib" or "AF", is the most common continuous abnormal heart rate or rhythm. Atrial fibrillation causes a rapid and irregular heartbeat, during which the upper two chambers of the heart that receive blood (the atria) quiver or "fibrillate" instead of beating normally.

The rapid and irregular heartbeat caused by atrial fibrillation prevents the heart from pumping blood efficiently. As a result, blood tends to pool in the heart chambers, increasing the risk of forming a blood clot inside the heart. Blood clots can travel from the heart into the bloodstream and circulate through the body. Often, they may become lodged in an artery, causing serious problems such as stroke.

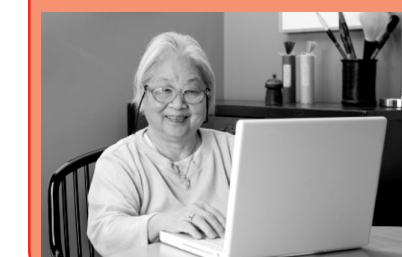
As we age, the incidence of atrial fibrillation increases. Diseases affecting the heart's valves or muscle, including heart attacks and long-term uncontrolled high blood pressure, are common causes. However, some people who have atrial fibrillation don't have other underlying heart problems, which is a condition called "lone atrial fibrillation". In lone atrial fibrillation, the cause is often unclear.

Different patients have different symptoms. Most patients describe atrial fibrillation as feeling like their heart has skipped a beat, followed by a thud, and then a speeding up or racing of the heart. Others describe it as an erratic heartbeat or strong heart palpitations. Atrial fibrillation symptoms can be continuous or come in episodes lasting from minutes to hours or days.

The diagnosis of atrial fibrillation could be made only by a physician or a health care provider, and usually involves electrocardiogram (ECG) recording. However, because atrial fibrillation could come and go, a regular ECG may be normal. If this is the case, a test called ambulatory electrocardiography may be done. During this test, the patient wears a portable ECG machine called a Holter monitor, usually for 24 hours.

Despite the annoying symptoms and the serious complications of atrial fibrillation, prevention and treatment are possible.

Through MESA research that includes questions about atrial fibrillation during the regular phone calls and through the study electrocardiograms, it is hoped that we can know more about atrial fibrillation and its risk factors so that prevention and treatment strategies could be effectively developed. ❤️



The MESA Participant Website has been Redesigned!

Please be sure to visit our redesigned website for new content and improved user-friendliness!

<http://www.mesa-nhlbi.org/ParticipantWebsite/>