

# The MESA

Newsletter of the Multi-Ethnic Study  
of Atherosclerosis

September 2011  
No. 13

# Messenger



**The MESA Exam 5 ends on  
November 30, 2011**

If you have not yet come for this visit, we would really like to hear from you.

Your participation is very important to the success of MESA, and the dedicated staff at your clinic would love to see you.

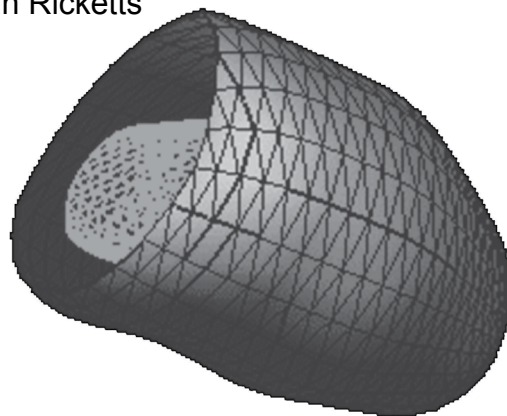
Please take a moment to call your clinic for your appointment.

**Schedule your exam soon.**

**Coming Soon:** MESA staff may be contacting you this fall about an important new study called MESA Lung Fibrosis.

## Have Your Heart's Picture Taken


By Erin Ricketts



Example heart from the MESA MRI

If you had a heart MRI in Exam 1, you are a MESA MRI participant. Many of the MESA MRI participants have already had pictures of their heart taken again with the most advanced generation of MRI scanners that exist – have you?

From your previous heart MRI, you learned how your heart is pumping, how much it weighs, and how thick it is. MESA heart MRI scans reveal a huge amount of information. For example, men have larger hearts than women (perhaps contrary to population belief!), even accounting for their larger body size. Overweight people have overweight hearts – but fortunately, those who exercise only about 30 minutes a day have much more efficient hearts.

During this exam period, MESA heart MRI is showing differences in the heart muscle tissue in different individuals. We need your help in participating in the heart MRI. If you had the heart MRI in Exam 1 and haven't done it yet in this exam, we invite you to have the MRI test to see how your heart is working and if there have been changes. If you have questions about the test or would like to schedule an appointment for it, please contact your local MESA Field Center! 

## How does MESA Measure Up?

By Diane Bild, MD, MPH  
MESA Project Officer

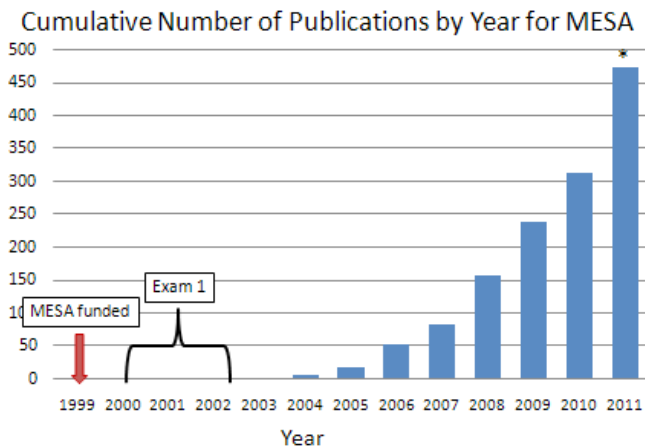


Periodically, we step back, take stock, and see how MESA is doing from a new perspective. For a complex, long-range project like the Multi-Ethnic Study of Atherosclerosis, this type of assessment can take many forms.

The mission of the National Heart, Lung, and Blood Institute (NHLBI), which sponsors MESA, is to promote the prevention and treatment of heart, lung, and blood diseases and enhance the health of all individuals so that they can live longer and more fulfilling lives. How does MESA support this mission, and how do we know it is achieving its goals?

### Scientific Productivity

The primary measure of a research study is its research discoveries, which are published in reputable scientific and medical journals. Below is a chart showing the growth in published papers since MESA was “born.” It’s quite impressive!



\*Projected, based on productivity through June 2011

### Use of MESA Findings by Other Researchers

In 2008, the MESA investigators published an important paper (pictured below), which showed that coronary calcium was a strong predictor of heart attack and other forms of coronary heart disease. This paper has been cited 290 times, meaning that 290 other groups

of scientists referred to it in their published papers as an important basis for their own research or to support some ideas surrounding coronary calcium.

ORIGINAL ARTICLE

### Coronary Calcium as a Predictor of Coronary Events in Four Racial or Ethnic Groups

Robert Detrano, M.D., Ph.D., Alan D. Guerci, M.D., J. Jeffrey Carr, M.D., M.S.C.E., Diane E. Bild, M.D., M.P.H., Gregory Burke, M.D., Ph.D., Aaron R. Folsom, M.D., Kiang Liu, Ph.D., Steven Shea, M.D., Moyses Szklo, M.D., Dr.P.H., David A. Bluemke, M.D., Ph.D., Daniel H. O’Leary, M.D., Russell Tracy, Ph.D., Karol Watson, M.D., Ph.D., Nathan D. Wong, Ph.D., and Richard A. Kronmal, Ph.D.

From the time MESA began until June 2011, 3,525 other articles have cited MESA papers (not including the MESA papers citing other MESA papers). That’s quite a lot!

### Use of MESA Findings for Health Care

MESA data have been used to create tables of normal or expected values for measures used to detect heart disease – similar to growth charts used to measure children’s growth. One such tool, the MESA CAC Reference Values calculator is posted on the MESA web site (<http://www.mesa-nhlbi.org/CACReference.aspx>) and has been accessed from the site over 26,000 times!

MESA has also published reference values for several measures of heart structure and function in healthy people including: left ventricular size, cardiac function, thoracic aorta diameter, and structure and function of the right ventricle.

In summary, MESA appears to be meeting its goals, supporting important science about cardiovascular disease and, we hope, leading to improved health. ❤️

## Sleep, Cardiovascular Disease, and MESA

By Susan Redline, MD, MPH, Harvard Univ.  
and Daniel Mobley, RPSGT

**H**ave you received a brochure, a letter, or a telephone call asking for your participation in the MESA sleep sub-study? Are you curious about why MESA is interested in your sleep quality, sleep patterns, or whether or not you might have a sleep disorder? The explanation is quite simple. Many studies have looked at the relationship between sleep disorders and cardiovascular disease in a single population. However, no study has ever examined that relationship across an ethnically diverse group. In October 2010, the first MESA

### An estimated 2 to 20% of adults have sleep apnea.

sleep sub-study participant was enrolled, and over 500 studies have been performed to date! Over the next two years, MESA will enroll about 2,000 more participants in the MESA sleep sub-study and will examine the sleep data of at least 500 participants from each of its race/ethnic groups: White, African American, Hispanic, and Chinese.

An estimated 2 to 20% of adults have sleep apnea, a disorder characterized by loud and disruptive snoring, snorting, gasping for air, and daytime sleepiness. Also referred to as obstructive sleep apnea (OSA), sleep apnea-hypopnea syndrome (SAHS), and sleep disordered breathing (SDB), sleep apnea occurs when the throat closes repeatedly during sleep, causing sleep to be interrupted. When the throat closes, air cannot pass into the lungs. This often leads to falls in oxygen levels in the bloodstream and increased stress on the heart. Sleep apnea has also been associated with disorders such as hypertension and diabetes. Other common sleep disorders that disrupt sleep are insomnia, which is the inability to fall asleep or to stay asleep for sufficient time to feel rested, and Periodic Limb Movement Disorder, which is a condition causing the leg muscles to jerk or kick repeatedly during sleep. The MESA sleep sub-study will attempt to determine if these conditions that interrupt sleep are associated with increased risk of

cardiovascular disease and other health problems.

By now, you are probably wondering how MESA is going to actually study your sleep. Since sleep apnea and other sleep disorders cannot be detected during routine physician office visits or by blood tests, the MESA staff will schedule a time for two MESA staff members to actually visit with you in your home. The visit should take about 90 minutes, and participants will be asked to sign a consent form, complete a questionnaire, and to wear a device similar to a small watch for seven days. This device is called an actigraph, and it provides information such as how long a person sleeps at night, how many awakenings occur during the night and activity levels both while awake and during sleep. Instructions will be provided explaining how to operate the watch, record activity, and how to return the watch after seven days. The other test that will only take place on the night of the visit to your home is called a polysomnogram. This overnight test will allow the research staff to record your breathing movements, airflow, heartbeat, sleep and wake time, leg movements, body position, and blood oxygen levels. The MESA staff will attach small sensors to your body, on your head, around your chest and abdomen, under your nose, and on the tip of one finger. Figure 1 shows two of the MESA sleep techs from the University of Minnesota, Alex and Ellie, and Alex is wearing the same equipment that participants wear for the overnight polysomnogram. The sensors attach



*Techs from the Univ. of MN,  
Alex & Ellie.*

*(Continued on page 4)*

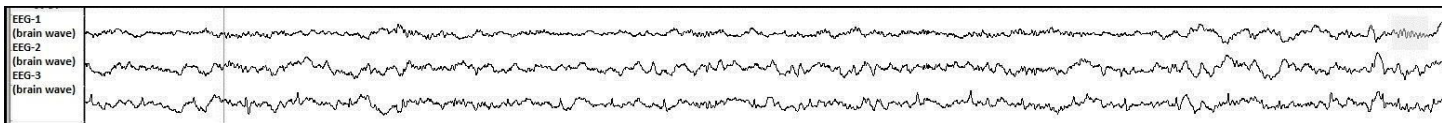
(Continued from p. 3)

MESA staff will make arrangements to obtain the recording device and sensors within a day or two of the study. Once the recording device and sensors have been returned to MESA, specially trained staff will review the data (figure 2 below) to see if sleep apnea, periodic limb movements, or abnormal heart rhythms occurred. Significant abnormal findings will be reviewed by a physician, and participants will receive a letter that explains the results of both the actigraph recording and the polysomnogram recording. Just some of the things you, as a participant, can learn about your sleep include how much time you actually sleep at night, how efficient your sleep is, and how much time you spend in the various stages of sleep. Sleep occurs in multiple stages

ranging from very light stage 1 sleep to very deep stage 3/4 sleep. Do you ever wonder if you spend any time in dreaming sleep, also called REM sleep? Participants in the MESA sleep sub-study will learn all of this information and more!

The MESA investigators and staff truly appreciate your participation in the MESA sleep sub-study. Through this research that includes your answers to questionnaires, and the data recorded by the actigraph and polysomnogram, we hope to learn more about the role of sleep disorders in atherosclerosis and cardiovascular disease. A sincere thank you to every MESA participant who says, "yes", and agrees to participate in this groundbreaking study! ❤️

Figure 2



|   |   |
|---|---|
| <b>Wake Forest:</b><br>Catherine Nunn, RN – (336) -716-6650 | <b>Minnesota:</b><br>Christine Dwight – (612) 625-8560      |
| <b>Columbia:</b><br>Cecilia Castro – (212) 305-9932         | <b>Northwestern:</b><br>Grace Ho – (312) 503-3298           |
| <b>Johns Hopkins:</b><br>Imene Benayache (410) 614-2488     | <b>UCLA:</b><br>Anthony Sosa or Sameh Tadros (626) 979-4920 |



The MESA Messenger is produced by the Multi-Ethnic Study of Atherosclerosis (MESA). MESA is funded by the National Heart, Lung and Blood Institute (NHLBI).



PRSRT STD  
 U.S. Postage  
 Seattle, WA  
 Permit No. 1529

Multi-Ethnic Study of Atherosclerosis  
 Coordinating Center  
 University of Washington, Box 354922  
 6200 NE 74th St., Building 29, Suite 310  
 Seattle, WA 98115