

MESA Messenger

Join us at MESA's Seventh Exam!

By Cashell Jaquish, PhD, MESA Project Office, NHLBI, NIH

MESA Exam 7 is underway! You may have already been contacted to schedule your exam. I would like to take a moment to express our gratitude for you, our MESA participants. We are thankful that you continue to answer our calls, update us on your health, and make this study possible. It is with deep appreciation that we look forward to connecting with you at our Seventh MESA Exam.

We understand that not everyone is ready to come back to the clinic in person and that health or life challenges can make it impossible for some. MESA clinic staff will call you this year to schedule your exam visit and talk about home or remote visit options. In whatever way you decide to participate, you will notice that this MESA Exam will contain some of the exam components you are used to, and also some new ones.

This exam gives careful attention to the conditions collectively called the "Social Determinants of Health." This area of research looks at how factors such as your stress, your income and education, where you live, your community and family support, and discrimination that you've experienced can influence your health. We know that these Social Determinants of Health can differ between racial and ethnic groups.

Research in MESA by Dr. Wendy Post showed racial and ethnic differences in both overall mortality and cardiovascular mortality specifically. These differences are already widely known, but Dr. Post showed that the differences were mostly due to Social Determinants



It's time for
Exam 7!
We hope to see you soon!

of Health. Her research findings support the need to further identify and act on the social factors that shape differences in health across racial/ethnic groups.

The MESA study includes people with various lifestyles, racial and ethnic backgrounds who live in different parts of the US. This makes MESA ideal to identify additional factors which shape differences in health across racial and ethnic groups. At the exam, you will be asked questions about your neighborhood, daily stress levels, community involvement, outdoor activities, feelings of safety, experiences of discrimination, and more. Your answers to these questions will not only help to identify factors contributing to your health, but will also help to identify actions that can help to reduce disparities in health across racial and ethnic groups.

Once again, we thank you for your commitment to the MESA Study and we look forward to seeing you at Exam 7. If there is anything we can do to make your next exam visit more pleasant, please do not hesitate to share your experience with the clinic staff. ❤️

Questions? Contact your MESA Field Center at:

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The Ups and Downs of Your Blood Sugar

By Morgana Mongraw-Chaffin, PhD, Wake Forest University

We know that diabetes prevention and treatment is important for heart health, but we still have a lot to learn about how diabetes and blood sugar affects brain health. MESA Exam 7 gives us a chance to learn more about blood sugar and its effect on memory and brain health. This matters for those with and without diabetes.

At the exam, we will ask you to wear a continuous glucose monitor (CGM) patch on your upper arm for up to 14 days. In past exams, we measured your blood sugar at one time point. The CGM will let us see what your blood sugar (glucose) is doing every 15 minutes for up to two weeks! This more detailed picture of blood sugar during normal everyday activities will help us understand how blood sugar influences memory and brain health.



Image: The continuous glucose monitor (CGM) patch is worn on the upper arm to record blood sugar levels.

The CGM is easy to use and should be painless. Most participants and MESA staff say they forget they're even wearing it and enjoy seeing their blood sugar patterns across the week. If you participate, you will receive a report showing your daily blood sugar readings while wearing the CGM and can see the patterns of your high and low values. ❤️

A Healthy 24 Hours for the Brain

By Kelley Pettee Gabriel, PhD, University of Alabama at Birmingham

Studies have shown that movement is important for brain health; however, exercise usually takes up a very small part of the day. MESA investigators are interested in learning how total movement, including time spent being still or active during the day and time spent asleep at night, relates to brain health. The MESA 24-Hour Activity Cycle Study will look to see if movement during the day and sleep during the night are important for your memory. For this study, we will ask you to wear a small red monitor on your right hip during the entire time you are awake for seven days in a row. This will help us learn about your daily movement patterns. A second monitor that you wear on your wrist will give us information about your sleep. Together with other MESA information, this new movement and sleep data will help us understand what a healthy 24 hours looks like for brain health.

If you participate in this study, you will get a letter summarizing your daily activity, including the number of steps you took while wearing the hip monitor. We will also share some general information on how many steps you should try to take each day and ways to include more steps in your daily routines. We look forward to discussing this study opportunity with you at your Exam 7 visit! ❤️

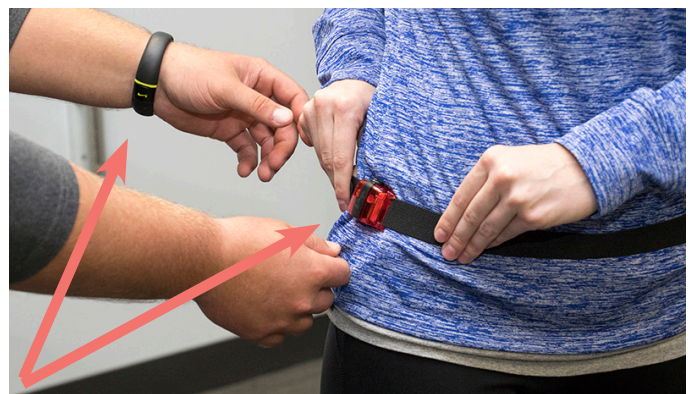


Image: A monitor worn like a belt on your hip records movement while you're awake. A monitor worn like a watch on your wrist records sleep data.

How Stress Can Impact Your Health

By Kiarri Kershaw, PhD, Northwestern University and Kosuke Inoue, MD, PhD, UCLA

Your heart starts racing, your breath quickens, your palms become sweaty and clammy, and your muscles are ready for action. All of us have felt these “fight-or-flight” responses before, and they represent our body’s natural reaction to stress. We all experience stress, from everyday experiences at work or with family, to larger events such as the death of a loved one or a serious diagnosis. The body’s stress response system was designed to protect us, so we can react quickly if there is an emergency. However, if your body’s stress response stays activated longer than necessary for survival, it can be bad for your health.

Several studies in MESA have shown that stress can be harmful for cardiovascular health. Stressful experiences, like ongoing relationship or money problems, have been measured using surveys at MESA exams. In addition, two previous MESA Stress ancillary studies have measured stress hormones in blood and urine samples. We know people respond to stressful experiences in different ways and measuring stress hormones is one way to see how stress affects the body. A recent study led by Dr. Kosuke Inoue looked at levels of stress hormones found in urine. The research team found that participants with higher stress hormone levels, particularly cortisol, in their urine were more likely to develop high blood pressure and cardiovascular events like a heart attack or stroke.

At Exam 7, MESA will build on our previous stress research to test whether differences in the body’s response to stressful experiences, or “stress reactivity,” may account for racial and ethnic disparities in Alzheimer’s disease and other forms of dementia. Racial and ethnic minority groups, particularly Black and Latino individuals, are often exposed to more frequent and intense stressful situations in their lifetimes. They also tend to have fewer resources to cope with these situations in a healthy way, like safe places to exercise or access to mental health care. Fewer resources to cope with stressful experiences may cause the body’s fight-or-flight response to break down. As with cardiovascular health, these overloaded stress response systems may lead to problems making decisions and remembering things, and eventually, dementia.

Stress reactivity will be measured in MESA Exam 7 using the Cardea SOLO heart monitor. If you join, you will have the heart monitor applied to your upper, left chest by clinic personnel during Exam 7. The monitor records your heartbeat for 7 days. You will be asked to answer a short phone survey every day you are wearing the heart monitor. The short daily phone survey will ask you some brief questions about stressful and supportive experiences you may have encountered throughout your day, and how you are feeling.

At the end of the 7-day study period, you can remove and return the Cardea SOLO sensor in a prepaid mailing envelope. Your heart rhythm information will then be read by a physician. If there are any problems, like atrial fibrillation, you will be notified and can share the results from the heart monitor with your doctor. By participating in MESA, you are contributing to exciting new research on how stressful and supportive everyday experiences can impact your brain and body! ❤️



Image: The Cardea SOLO heart monitor is worn on the upper, left chest for 7 days to record heartbeat.

Sleep and Health: Tips for Getting a Good Night's Sleep

By Susan Redline, MD, Harvard Medical School

Humans spend about one-third of their time sleeping. While some people often think of sleep as simply a time to rest, it is actually a critical time for our brain and body to “re-charge.” Sleep experts recommend the following tips to improve sleep:

- Follow a regular and relaxing bedtime routine (like reading or listening to music). Go to bed and wake up about the same time every day. Avoid bright light and electronics before bed. Don't lie in bed awake: if you can't get to sleep after about 20 minutes, get up and do something relaxing and when you feel tired, return to bed. Sleep as long as needed to feel rested (usually 7 to 8 hours).
- Keep your bedroom comfortable for sleep: dark, quiet, and at a cool temperature during the night. Use dark shades or white noise machines if needed.
- Make daytime routines “sleep friendly”: Don't nap after about 3pm. Avoid heavy meals, alcohol, and caffeine in the two hours before bedtime. Exercise each day, but try to avoid heavy exercise before bed. Try to get at least 30 minutes of natural sunshine every day.



People with problems with loud snoring, difficulty falling asleep or staying asleep, or being sleepy during the day should speak to their doctors about their sleep to determine if they need treatment for a sleep disorder.

The MESA family wishes you a good night's sleep!



MESA and the MESA Messenger newsletter are funded by the National Heart, Lung, and Blood Institute (NHLBI).



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