

THE FRAMINGHAM HEARTBEAT

Fall 2022



The Framingham Heart Study is a project of the
National Heart, Lung, & Blood Institute & Boston University

Exam 4 has started!

Generation 3, Omni 2 and New Offspring Spouse

Success rests on your participation. NPR dubbed the FHS one of the most important research projects in medical history. Help us uncover new discoveries in public health. Our recruitment team will be contacting you. Whether you live in New England or are coming from out of state, we want to see you. Please tell us how we can make it simple and easy for you!

**You can
call or email us...**

If you prefer to speak Spanish

Patricia Olea 508-935-3485 | email: polea@bu.edu

Maureen Valentino 508-935-3417 | email: maureenv@bu.edu



Recruitment Team

Left to Right: Top: Dave, Patricia, Maria
Bottom: Maureen, Mary

Exam 4: Core Measures and Procedures

At the heart of FHS is the core Exam, the longest-running longitudinal study of its type. Data from this research is relied upon by healthcare researchers worldwide. We would like to take a small amount of blood, a urine sample, EKG, body measurements and medical history. We will ask you some survey questions pertaining to mood, daily living, physical activities, and cognitive function. **We can't wait to see you again!**



Something Old

Bone Study

As we age, the microscopic structure of our skeletons/bones changes due to many factors, two of which will be studied in this project. We believe that the presence of metabolites (molecules that circulate in blood) and small clones of cells that have mutations in your DNA, may be related to changes in bone architecture and fracture risk. We will perform scans of bones using high resolution peripheral quantitative computed tomography (HR-pQCT) as we did at Exam 3. By repeating the scans now, we will determine if changes in your skeleton/bones have occurred. If we discover that the metabolites or the clones of cells with mutations are related to weakening of bones and fracture, we may be able to target these factors for the development of new treatments for the bone loss that accompanies aging, and most importantly to prevent the fractures that cause so much pain and disability.

Platelet Study

Platelets are a critical cell type in both *hemostasis* (wound healing and bleeding) and *thrombosis* (heart attack and stroke). Up until now, we have very little knowledge in humans about how platelet function changes as we age. The largest previous studies in individuals in their 70s and 80s included fewer than 100 people! From the living cells in a small amount of your blood, we will collect many data points on platelets with different technologies. We hope to learn about the genetic components and whether epidemiological factors like family history of bleeding, diet and supplements, drug prescriptions, physical activity and cardiovascular risk factors influence platelet reactivity. Platelet researchers worldwide are excited to see what comes from such a large and detailed population study. **We are excited to have you be a part of it. There will be no other dataset like this in the world! With your participation, FHS will have 20 times more data than existing studies do.**



Microbiome Study

What we learned from the Microbiome study during Exam 3

We discovered certain bacteria in the gut that actually eat ... and breaks down ... cholesterol. These bacteria are associated with a significantly lower level of "bad" (LDL) cholesterol in the bloodstream. This discovery is almost as important as genetics for understanding how cholesterol moves through the body! It might help prevent cardiovascular disease!

This is a research study to learn more about your microbiome and how the microbes in it affect your overall health. We intend to explore how the bacteria in your gut and digestive tract affect heart health and risk of diabetes. Participants will be asked to collect a stool sample at home and send it to our lab for analysis.

REMEMBER:

Framingham Heart Study evaluations are designed for research. They do not replace your regular check-ups with your own doctor(s)!



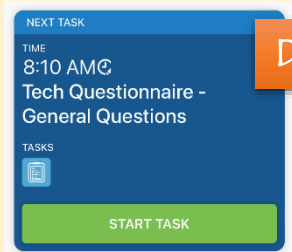
Something New

Continuous Glucose Monitoring

To be a part of this study, you will wear a glucose monitoring



device for 10 days on either your abdomen or back of the upper arm. Additionally, you can choose to track your activity and diet at the same time to help provide deeper insights into our body's glucose management systems. We'll get you set up and ready to go at your exam visit!



Digital Health Study

Digital technologies offer an alternative method for collecting brain aging-related data much more easily than traditional pencil-paper tests. During the exam, participants will be asked to describe what they see in a picture, and we will audio record what they say. Then, we will help participants who have a smartphone download an application that allows them to do some more testing at home. The home testing includes a series of cognitive tests and asks them to use the application for about 15-20 minutes every 3 months for

3 years. We will determine whether digital cognitive measures can help us detect changes at a younger age compared to the traditional paper and pencil neuropsychological tests that are being collected through another FHS brain aging study that has been underway since 2009.

Mixed Meal Challenge



The mixed meal challenge consists of consuming a Boost protein shake, mixed with additional nutrients, at the exam. This drink is designed to mimic a full, well-balanced meal, and is quite tasty! You

can choose between chocolate and vanilla. You'll have a second blood draw two hours later and you're done. Our goal is to learn more about metabolism by assessing small molecules in the blood samples taken before and after consuming the shake. Examining the distinct patterns of these molecules in the blood after the "meal" will help us better track signs of heart disease and diabetes risk that may not be present in a fasting state.



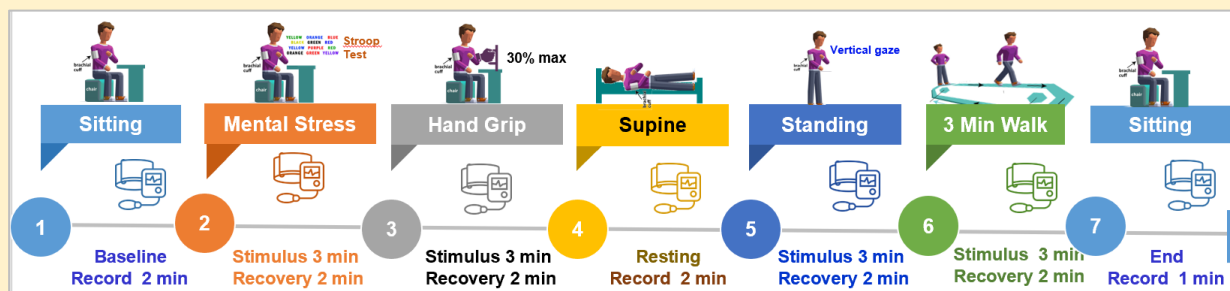
Sensory Sensitivity Station

We are interested in understanding the pain experience of individuals, particularly that of older adults in the community. We will assess aspects of your pain experience through self-administered questionnaires.



Cardiovascular Resilience Evaluation

The goal of the Cardiovascular Resilience Evaluation is to study how your heart and blood circulation system respond to various activities that you undertake during your daily life. We will accomplish this by having you perform a set of structured tasks that mimic activities of daily living, while closely monitoring your heart rate and blood pressure changes that occur in response to them. The simple tasks you will complete are shown in the graphic below. A compact device will be placed on your wrist with a small cuff on one of your fingers to continuously



monitor your heart rate and blood pressure while you perform these tasks. Additional information will also be gathered by placing a small clip on a fingertip to monitor your blood oxygen and a small patch on your chest that will continuously monitor your ECG. The tasks you will be asked to perform are not any more strenuous or stressful than typical activities that you would normally undertake.

Psychosocial Determinants of Health

For this study we would like to identify psychological and social (psychosocial) factors that influence an individual's brain health, positively and negatively. You will be asked to complete several questionnaires as part of this study. Our overarching hypothesis is that psychosocial factors (social relationship measures, loneliness, and home, occupational, and group environments) affect brain biology, which alters risk and progression of cognitive decline. The social environments in which people live have been shown to influence health behavior. Poor social relationship characteristics have been linked with cognitive decline and increased risk of dementia. Inversely, people with greater social activity may be at reduced risk of cognitive impairment.

Teams: Exam, Recruitment, Lab



Lab Team



Offspring, Omni 1 and others Studies you may be invited to participate in

FHS Brain Aging Program. This study continues the cognitive assessment and brain MRI scans that began in 1999 and is open to all participants from all cohorts. New to this project is the addition of a neurology examination. While we will offer these examinations at the FHS Research Center as has been done in the past, we will also offer the option of doing it in your home, whether in person or through videoconferencing. One way our research is unique has been the use of digital recordings of written and spoken responses, which has allowed us to find new ways to measure cognition and mood-related behaviors. We are using this unique data to help detect changes that could someday be used to trigger interventions that will reduce risk or progression of dementia/Alzheimer's disease. We are continuing the brain donation program that allows for neuropathological examination of brains and provides important insights about risk factors, biomarkers, and genetic factors related to those who do and do not have dementia/Alzheimer's disease.

Contact: **Sophie Donohue** at (508) 663-4078 or sdonohue@bu.edu



Muscle Study. Age-related loss of muscle mass may cause falls and fractures. In the new Framingham Muscle Study, we will use a state-of-the-art method to assess the amount of muscle in your body by having you take a pill containing creatine, which is a building block of muscle. Three days later a urine test will be collected to measure creatine and quantify the amount of muscle in your body. Our first goal is to determine the genetic and non-genetic factors (diet and physical activity) that contribute to total muscle mass. The second goal is to determine if loss of total muscle mass causes falls and fractures. Using this easy and accurate way of measuring the amount of muscle, we hope to find ways of preserving this valuable tissue as we age. Preservation of muscle may also help to prevent falls and fractures that cause so much pain and disability. Contact: **Anjali Singh at (213) 249-0153 or AnjaliSingh@hsl.harvard.edu**

Digital Cognitive Studies. Digital technologies offer an alternative method for collecting brain aging data. The Digital Study will involve using a smartphone to use a set of applications that take about 15-20 minutes every 3 months for 3 years. The digital data will be compared to imaging (MRI, PET) and other clinical measures. Ultimately, the findings will help determine whether digital cognitive measures are more sensitive to detecting changes in cognition at a younger age compared to neuropsychological tests that are being collected through the Brain Aging Program. This project will invite all FHS participants from all cohorts. Contact: **Lindsay Hathaway at (508) 663-4019 or lah3@bu.edu**

Virtual Neurology Visits and PET/MRI Study. The FHS Neurology Team is conducting virtual visits with participants for both cognitive testing and neurological examinations, using video and telephone capabilities to visit with you from the safety of your home. We hope to resume in-person activities for these visits when safe, at which time we will offer participants the option to complete their visit in-person or virtually, based on your preference. If you wish to learn more about our studies mentioned here, or to check your eligibility, please call **Vicki Peterson at (508) 935-3468 or vpeters@bu.edu**

Study to Screen Pulmonary Fibrosis. Idiopathic (occurring without a known cause) pulmonary fibrosis, a disorder characterized by lung scarring that has a prognosis worse than that of most cancers, can be slowed with medications, but it is frequently identified late, in advanced stages. Our work in the Framingham Heart Study suggests that early stages of pulmonary fibrosis can be detected and may be more common than we previously realized. To participate, you may be asked to fill out questionnaires and/or complete a pulmonary evaluation at Brigham and Women's Hospital in Boston. This study is designed to screen undiagnosed FHS participants to improve our understanding of the factors that help to predict pulmonary fibrosis development, and to understand the concerns that people may have in participating in a screening study and receiving information about their lung health. Contact: **Maureen Valentino at (508) 935-3417 or maureenv@bu.edu**



ONGOING RESEARCH EFFORTS FOR ALL PARTICIPANTS

FHS BRAIN DONATION PROGRAM Although we have learned much about diseases affecting the brain, many questions remain. The best way to learn about these diseases is to study the brain itself. Donating your brain can help your loved ones and others. The FHS Brain Donation Program enables research aimed at earlier and more accurate diagnosis of neurological illnesses, providing hope to future generations. Brain donations can also help provide families with a definitive diagnosis if their loved one was known to have suffered from a neurological illness. To register or to learn more about the FHS Brain Donation Program, please contact **Sophie Donohue at (508) 663-4078 or sdonohue@bu.edu**.



HAVE YOU HAD A RECENT STROKE? PLEASE LET US KNOW! Stroke is a medical emergency, and symptoms can include facial weakness, sudden difficulty speaking, weakness on one side of the body or sudden vision loss. Anyone with symptoms of stroke should call 911 and get immediate help. ***If you had a stroke or received medical care for stroke symptoms, FHS would like to know as soon as you or a family member can contact us.*** Reach us at the ***FHS Stroke Hotline at (617) 630-3627.*** If you live out of state or are unable to be seen in person, we may also schedule an evaluation over the internet by video teleconference. This is a research evaluation only and is not meant to provide any medical care or advice. We greatly appreciate your efforts to help us monitor and research this disabling disease; your participation has helped us reduce the risk of stroke and TIA and we are studying how to also reduce the risk of memory and thinking problems after a stroke.

GENETIC RESEARCH FINDINGS FROM FHS POPSEQ



The Sequencing in Populations (PopSeq) project: PopSeq is an NHLBI grant currently supporting the return of genetic results to a subset of FHS participants. The Laboratory for Molecular Medicine sifts through FHS genomic data for medically important information. It is a laborious process. So far, the project has identified 42 living FHS participants who carry genetic variants that may increase risk for illness in any of the 59 genes noted by the American College of Medical Geneticists (ACMG).

Consent for FHS genetics: In FHS exam consent forms, you were offered options on participation in genetic research. One option was to receive genetic research findings that may be helpful to your personal healthcare. FHS keeps track of your consent preferences. If you have questions about your genetic consent status, please contact FHS staff.

Reporting results: Jodi Hoffman, MD is the medical geneticist at Boston Medical Center (BMC). She is alerted by FHS when the PopSeq project finds a variant for an FHS participant. She has contacted and informed 32 of the 42 participants identified. ***If you receive a phone call or letter from Dr. Hoffman, from BMC Genetics or from her FHS assistant Barbara Inglese, please respond so she can give you this important information.*** Please note most FHS participants will not be contacted because most participants will not have one of these illness-associated variants identified in this research protocol.

Limitations: In the sub-set of FHS genetic data that PopSeq is studying, we expect fewer than 80 individuals will be found and notified in the next 12 months. However, genetic researchers around the world and the ACMG continue to find more variants that increase risk for disease and share what they learn. Some individual FHS participants may carry yet-to-be-discovered variants. As always if you have questions about genetic testing, you may want to discuss your concerns with your healthcare provider.

PopSeq Surveys: The PopSeq study is conducting a survey among 700 pre-selected participants to find new connections between common conditions and genetic variants in the FHS population. The survey will be conducted by phone, email, and/or US mail. Please respond to the survey invitation from the FHS PopSeq staff.

FHS thanks you for the unique contributions that each one of you is making to further medical research!

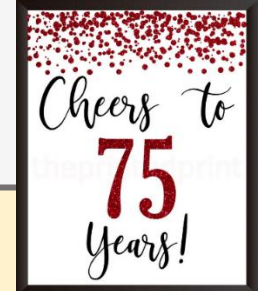


Get ready to celebrate!

The FHS Diamond Anniversary is almost here

1948 - 2023

Details coming in 2023



As we mentioned in the last newsletter, the *Framingham Heart Study* and the *Friends of FHS*, each sponsored the creation of a heart to support efforts of the Framingham Centre Common Cultural District.



**Friends
heart**



**FHS
heart**



You can see these hearts at the front and back door of the FHS Research Center

June 17, 2022

Framingham Common

FHS staff at the unveiling of the sponsored hearts





A Message from the Friends of the Framingham Heart Study

Greetings, fellow participants. We are participant volunteers from the Offspring (Second Generation), Third Generation, and Omni cohorts who meet periodically throughout the year as members of the Board of Trustees for the Friends of the Framingham Heart Study. With funds donated to the Friends, we provide support for items and activities at FHS, such as occasional travel grants to FHS investigators attending scientific conferences, audio-visual equipment for long-distance conferencing with collaborators, annual scholarships to high-school graduates going to college and the ECG cards sent to participants after exam visits. With your help, we will be able to do more to support FHS in its groundbreaking research for improving public health related to heart disease, diabetes, cancer, sleep disorders, aging and Alzheimer's disease.

The Friends of the FHS is a 501(c) (3) nonprofit organization supported solely by donations. We invite you to contribute a personal donation or one in the memory of, or in honor of a family member or friend. No donation is too small or too large and all are tax deductible.

To make a donation
please mail a check made out to:
"Friends of the FHS."
Address it to:

Rebecca Bennett
ATTN: Friends of the FHS
73 Mt. Wayte Ave., Suite 2
Framingham, MA 01702

2022 Dawber Scholarship Essay Contest Winners



Scholarship Winner
Kira Newbert



Runner-up
Kate Campion



Details about the **2023 DAWBER SCHOLARSHIP ESSAY CONTEST** will be provided in the next FHS Newsletter





STATE *of the* STUDY

NEW MULTIPLE-PRINCIPAL INVESTIGATORS



Joanne Murabito, MD, and **George O'Connor, MD**, have agreed to serve as *ad interim* Co-Directors and Multiple-Principal Investigators (PI) of the Framingham Heart Study (FHS), effective 9/1/2022. Congratulations to Vasam Ramachandran, MD, who is now the founding Dean of the University of Texas School of Public Health at San Antonio. We are planning a national search for a

permanent director and PI in partnership with the NHLBI.

Some of you may know us

Dr. Murabito has served as Co-PI and the Research Center Director at the FHS for many years overseeing the examinations of all cohort study participants. She is the PI of the electronic FHS (eFHS) that investigates the use of technology (smartphones and smartwatches) to monitor and improve health. Dr. Murabito studies factors associated with healthy aging and longevity.

Dr. O'Connor studies lung function at the FHS and worked closely with Research Center staff conducting the pulmonary function testing on prior exams. Dr. O'Connor also worked with FHS to recruit the Omni cohort. His research involves finding new genes for lung function impairment, interstitial lung abnormalities and allergy. He is working on many other NIH-funded studies.

We are delighted to celebrate with you the accomplishments that have occurred for YOUR study

We are truly grateful to all the participants who were able to contribute to the **Offspring (Exam 10) and OMNI 1 (Exam 5)** exam cycle with all the ups and downs of the COVID-19 pandemic.

The **fourth examination of Gen3/Omni 2/NOS cohorts began September 13, 2022**, with a variety of testing to provide insights into the health of our cardiovascular system, metabolism, bone and brain. To ensure the utmost safety in our Research Center, we continue to follow CDC and our state COVID-19 guidelines and continue to have a number of precautions in place.

We look forward to reaching each of you this year. We remain extremely grateful to each of you for your continued participation in the scientific mission of the FHS!

With highest regards,

Joanne Murabito, MD ScM George O'Connor, MD

Professors of Medicine, Boston University Chobanian & Avedisian School of Medicine



How to contact us

FHS Core

FHS Main Number

(508) 872-6562 or (800) 854-7582

FHS - All Participants

Maureen Valentino

(508) 935-3417, (800) 536-4143

or maureenv@bu.edu or text to (508) 935-3417

FHS - Spanish Speaking Participants

Patricia Olea-Fichtel

(508) 935-3485 or polea@bu.edu

FHS Brain Aging Program

Brain Donation Program

Sophie Donohue

(508) 663-4078 or sdonohue@bu.edu

Cognitive Testing, Neurology, and Brain MRI

Sophie Donohue

(508) 663-4078 or sdonohue@bu.edu

Digital Health and PET Scan Studies

Lindsay Hathaway

(508) 663-4019 or lah3@bu.edu

FHS Neurology Team

Stroke Study, Neuropsychology Testing, MRI & PET Scan Studies

Vicki Peterson

(508) 935-3468 or vpeters@bu.edu

How do we contact you?

If any of your contact information has changed, please give us a call so we can update it.



We couldn't do
this without you!

