

The Framingham Heartbeat

The annual newsletter for the participants of the Framingham Heart Study | **Winter 2014**

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

Current Projects

For Original participants:

- Contact information update. 1
- Medical history update. 1

For Offspring (Second Generation) and Omni 1 participants:

- Contact information update. 1
- Medical history update. 1
- Brain MRI and cognitive testing. 2
- Osteoporosis study. 2
- Sleep study. 3
- 24-hour urine study. 4
- Actical physical activity study. 4

For Third Generation participants:

- Contact information update. 1
- Medical history update. 1
- 24-hour urine pilot study for 100 participants. 4

For Omni 2 participants:

- Contact information update. 1
- Medical history update. 1

For New Offspring Spouse participants:

- Contact information update. 1
- Medical history update. 1
- Brain MRI and cognitive testing. 2
- Osteoporosis study. 2

4-3-2-1 CONTACT!

Thousands of participants kept in touch with FHS last year. They attended exams, completed medical history updates, sent in samples, and signed release forms. Contacts with you make FHS come alive. Here are four ways to stay connected and be counted:

4. **E-contact: A new survey soon will be sent by email to any participant who has provided FHS with an email address.** You'll be asked which internet tools you use. These tools may be used for future FHS data collection. Please respond to this short survey to help us keep in touch with you electronically. If you have a new email address, please email it to us at fhs@bu.edu. Please include your first and last name in the body of your email.
3. **Mail:** Some participants prefer to correspond by mail. FHS will continue to offer forms by mail. You also can return monitors and specimens by mail.
2. **Telephone:** We're always happy to talk to you. We can answer your questions about FHS or collect research information by phone. Call Maureen Valentino at (508) 935-3417 or (800) 536-4143, and let her know what would be a good time for her to call you.
1. **In-person:** For some studies, on-site visits are needed. We'll let you know when it's your turn to visit FHS for a new study.

Down to the Wire -- Offspring (Second Generation) Exam 9 and Omni 1 Exam 4 End in March; We're Counting On You!

The current exam is open for one more month! It ends March 31, 2014. If you haven't had an FHS exam in the past three years, please contact us right away to schedule an appointment. Offspring contact: Maureen Valentino at (508) 935-3417, (800) 536-4143, or maureenv@bu.edu. Omni contact: Paulina Drummond at (508) 935-3485, (888) 689-1682, or pautras@bu.edu.

Medical History Update: One of the Best Ways to Contribute to FHS

Even if you feel well and your health hasn't changed in several years, we'd still like to receive your medical history updates. Why is this important? In medical research, knowing *whether* and *when* a disease developed brings us closer to the truth when we estimate, for example, the link between high blood pressure and stroke. Without your current information, our statistical estimates become murky. Your regular clinic visits and medical history updates help make our understanding of disease accurate and precise.

We now offer an online medical history update survey. If you receive a mailed form, a password is enclosed. You may still complete the process by phone or mail if you prefer. For more information, please call Mary Ann Crossen at (508) 935-3430. We greatly appreciate your efforts to keep our records current.

What You Helped Discover in 2013

We want you to know that each time you visit us for an exam, mail us a urine sample, or complete a medical history update, you become part of important medical discoveries. So for this newsletter, we again proudly share with you selected FHS discoveries from 2013, which wouldn't have been possible without you. We thank you for another outstanding year.

For readers who would like more information, links to each journal article are provided in the online newsletter available at framinghamheartstudy.org.

Heart and Blood

- Genetic variation at a specific DNA site in a lipid gene was found to be associated with aortic-valve calcification and narrowing. -*New England Journal of Medicine*
- 62 new DNA sites were found to be associated with lipid levels. -*Nature Genetics*
- 18 new DNA sites were found to be associated with blood urate concentrations, which when elevated, can cause gout. -*Nature Genetics*
- A biomarker that is a product of protein breakdown was noted to be a new predictor for the development of diabetes. -*Journal of Clinical Investigation*

Bones

- A second bone mineral density screening test four years after an initial test did not meaningfully improve the prediction of hip or major osteoporotic fracture. -*Journal of the American Medical Association*

Lungs

- Genetic variation in a DNA sequence that marks the beginning of a specific mucus gene was found to be associated with CT scan findings of scarring in the lungs. -*New England Journal of Medicine*
- Short-term exposure to specific air pollutants within current Environmental Protection Agency standards was found to be associated with reduced lung function. -*American Journal of Respiratory and Critical Care Medicine*

Brain

- 11 new DNA sites were found to be associated with Alzheimer's disease. -*Nature Genetics*
- Specific patterns of cognitive deficits and brain structural measures were found to precede the occurrence of stroke. These patterns may aid early detection and prevention. -*Stroke*

Sleep

- Sleep disordered breathing was found to be associated with higher levels of a marker of inflammation. -*Sleep*

Transitions Happening at FHS

1. New Contract and Grants

A major source of funding for FHS is a contract between the National Heart, Lung, and Blood Institute and Boston University. We're currently awaiting the official contract renewal documentation from the federal government, which will define the scope of some areas of FHS research for the next several years. We'll keep you informed about new research as plans develop. In addition, FHS investigators are proposing several new research projects that may be funded as grants.

2. New Lead Investigator

In January of this year, Dr. Vasan Ramachandran, a cardiologist and internationally renowned expert on heart failure and high blood pressure, became the study's new Principal Investigator. He will manage the study's day-to-day scientific operations in his new role. Dr. Ramachandran is a Professor of Medicine and Chief of the Section of Preventive Medicine at the Boston University School of Medicine. He is also Co-Director of the FHS heart ultrasound laboratory. His research interests include congestive heart failure, high blood pressure, vascular testing and heart-ultra-

sound imaging, and exercise physiology. Before joining FHS as a research fellow in 1993, Dr. Ramachandran earned his MD degree from the All India Institute of Medical Sciences in New Delhi, India. FHS congratulates Dr. Ramachandran.

Dr. Philip A. Wolf, a neurologist and nearly 50-year veteran of FHS, led FHS as Principal Investigator from 1989 to 2013, and continues to lead the study's world-class brain research program.

Dr. Wolf is a Professor of Neurology at the Boston University School of Medicine. His research interests include stroke, dementia, and cognitive decline. He and his colleagues have made landmark discoveries such as the effects of cigarette smoking and atrial fibrillation on the risk for stroke. Dr. Wolf has been an FHS investigator since 1967. He earned his MD degree from the State University of New York in Syracuse. FHS is most appreciative of his ongoing contributions.

Brain MRI and Cognitive Testing

Initial testing on Third Generation and Omni 2 participants is completed. We thank all of you for your participation. We're now studying risk factors and biologic indicators related to cognition and brain structure.

We invite Offspring (Second Generation) and Omni 1 participants to a follow-up neuropsychologic/MRI assessment. This third assessment will provide invaluable information on changes in cognition and brain structure over time.

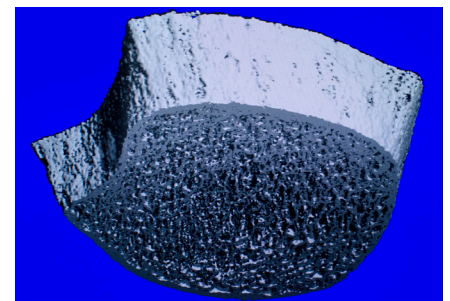
The FHS brain donation program continues. Results from the program provide information about risk factors and biologic indicators that may be related to cognitive impairment and dementia later in life.

Osteoporosis Study

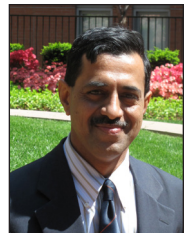
The Framingham Osteoporosis project continues its work at FHS to measure bone health. The Osteoporosis Team uses state-of-the-art technology to measure 3-D bone architecture in the current callback period at FHS.

In a preliminary analysis of 185 Offspring participants seen in 2012, we found that higher physical activity reported 14 years earlier (1996-2001), was associated with better bone architecture at some skeletal sites. The analysis suggests that physical activity at midlife may have lasting effects on bone architecture.

We're scheduling Offspring (Second Generation) and Omni 1 participants for this important callback visit. The exam also will include the traditional bone density "DXA" test and the results will be provided. To schedule an appointment for the FHS bone scan, please contact Linda Farese at (508) 935-3488, (800) 248-0409, or lfarese@bu.edu.



Actual image of the tibia acquired with the 3-D (HR-pQCT) scanner.



Dr. Vasan Ramachandran. Photo from the Boston University School of Medicine



Dr. Philip Wolf, 2013. Cydney Scott/Boston University Photography

Thomas Dawber Memorial Scholarship

Last year, the Friends of the Framingham Heart Study awarded scholarships to two high school seniors planning to attend college. Incoming Friends President John Galvani and the board members announced two scholarships for 2014 based on an essay contest: a \$1,000 scholarship and a \$500 scholarship.

Eligibility: Open to children, step-children, and grandchildren of FHS participants. Applicants must be graduating from high school this year and planning to attend college in Fall 2014.

To apply, only two items are needed: an email with the applicant's name, address, telephone number, and college and career plans (roughly a two-sentence description); and a 1,000-word essay titled *What it Means to be a Participant in Medical Research*. Applicants are welcome to tell a story, conduct an interview, or pursue any angle of interest. Please remember to fact-check and proofread before submitting.

Please email the essay as an attachment to Brent Ardaugh (ardaugh@bu.edu) by Friday, April 11, 2014. We'll confirm receipt of all essays within one business day. If you don't receive a confirmation, please call (508) 663-4019.

The Friends will review the essays and notify recipients by May 2014. Recipients will be invited to accept their awards at the FHS research center.



Above: Dawber Scholarship recipient Sarah Murphy (center), a nursing student at Worcester State University, poses with (left to right) Friends of the Framingham Heart Study treasurer Peter Allen, her grandmother Ann Murphy, former Friends president Karen LaChance, and FHS director Dr. Daniel Levy, after accepting her \$1,000 scholarship at the FHS research center. 2013. Brent Ardaugh/FHS

Right: Second-place Dawber Scholarship recipient Kelly Kryzak, a freshman bioengineering student at the University of Massachusetts Dartmouth. Photo provided by Kelly Kryzak



Did You Know?

FHS participants informed the Surgeon General's first report on smoking and health and the 50th anniversary report released in January of this year.

Osteoporosis is a silent disease that can result in fractures and loss of independence. Yet less than 25% of U.S. adults over 65 years old have their bone density tested.

Since the beginning of the study through January 2014, the FHS clinic staff have performed a total of 117,365 clinic exams.

A Message from the Friends of the Framingham Heart Study:

Greetings, fellow participants. We're 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 clinic visits. With your help, we'll be able to do more to support FHS in its ground-breaking research for improving public health related to heart disease, diabetes, cancer, sleep disorders, aging, and Alzheimer's disease. As a 501(c)(3) non-profit organization supported solely by donations, we invite you to contribute to the growth of this 60-year-old tradition. No donation is too small or too large and all are tax deductible.

To make a donation, please mail a check to:

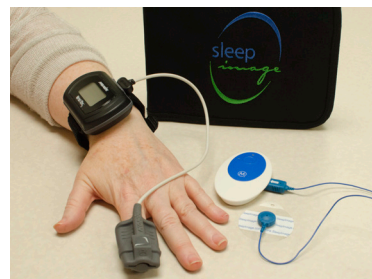
Lynda Norton, ATTN: Friends of the FHS,
73 Mt. Wayte Ave., Suite 2, Framingham, MA 01702.

New Sleep Study with Easy-to-Use Home Monitors

A new study is beginning to investigate factors that affect sleep quality using an experimental, FDA-approved monitor. The M1 recorder identifies stable and unstable sleep by detecting changes in your heart rate and breathing patterns. The study hopes to identify metabolic and cardiovascular changes linked to sleep quality.

Previous sleep studies performed in the 1990s required bulky equipment and significant setup time. The new equipment is the size of an iPod and wristwatch. These devices will be mailed and can be set up without assistance. With your help we hope to show that small devices can be used successfully in sleep medicine.

Most Offspring (Second Generation) and Omni 1 participants are eligible to participate and will be contacted in the coming months. Alternatively, to see if you qualify for the FHS sleep study, please contact Emily Manders at (508) 935-3489, (800) 601-3582, or emanders@bu.edu or Barbara Inglese at (508) 935-3451, (800) 601-3582, or bji@bu.edu.



Brent Ardaugh/FHS

The Nonin WristOx (left) measures blood oxygen during sleep. The M1 recorder (right) measures the electrical activity of the heart.

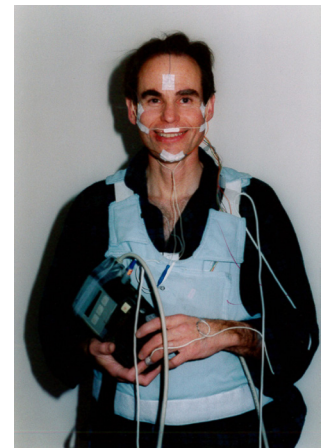


Photo provided by FHS sleep investigators

Compare the new devices with the bulky equipment from past FHS sleep studies.

Trustees of Boston University
National Heart, Lung, and Blood Institute
Framingham Heart Study

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Framingham, MA 01702

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Offspring and Omni 1 Exams NOW through March 31, 2014



24-Hour Urine Study by Mail

An at-home 24-hour urine collection was offered to Offspring (Second Generation) and Omni 1 participants when they attended their current clinic exam. The biologic indicators found in urine add information to the extensive FHS blood tests and provide researchers with more clues to health and disease. A pilot study using the same 24-hour urine collection tool is starting with 100 Third Generation participants. If you received a kit, please complete the collection and return the sample as directed. It's not too late. For questions about this project, please contact Barbara Inglese at (508) 935-3451, (800) 601-3582, or bjj@bu.edu.

Actical Physical Activity Study

Offspring (Second Generation) Exam 9 and Omni 1 participants were invited to wear a physical activity monitor for one week. This small and sensitive detector measures the motions of the person wearing it. The information of each person it records is valuable to FHS researchers as is the reusable monitor. When you return the monitor after wearing it, you'll receive a report on your physical activity and you'll be adding to the growing science on the benefits of physical activity. Please return the Actical to FHS even if you decide not to wear it. We're happy to send you an extra return envelope if you need one. For questions, please contact Emily Manders at (508) 935-3489, (800) 601-3582, or emanders@bu.edu.

Contact Us

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

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 **framinghamstudycenter**