



Framingham Heart Study
Group 3 Exam 3
RESEARCH CONSENT FORM

Welcome Back to the Framingham Heart Study

Together we are helping to fight heart disease and other major diseases and health conditions through research.

Why is the research study being done?

The Framingham Heart Study is a long term research study. The purpose of the study is:

- (1) To help understand how heart and blood vessel diseases, lung and blood diseases, stroke, memory loss, cancer, and other major diseases and health conditions develop; and
- (2) To examine DNA and its relationship to the risks of developing these diseases and other health conditions.

The research examination that will be conducted as part of this study is not clinical care. The tests are for research purposes only. We do not provide medical services. This research examination does not take the place of medical care by your own health care provider.

About your consent

Please read this research consent form carefully. It tells you important information about the research study. Taking part in a research study is voluntary. The decision whether or not to take part in all or any part of the research exam is entirely up to you. If you choose to take part, you can decide to stop at any time. Your decision will be honored and respected. There will be no penalty to you if you decide to stop or not to take part.

If I have questions or concerns about this research study, whom can I call?

If you have any questions about the research or about this form, please ask us. You can call us with your questions or concerns. You can ask questions as often as you want.

You can call a study staff member directly at (508) 872-6562, or you can send an email to FHS@bu.edu.

The Framingham Heart Study is led by investigators from Boston University and the National, Heart, Lung, and Blood Institute at the National Institutes of Health. Dr. Vasan S Ramachandran and Dr. Daniel Levy are in charge of the research study. You can contact Dr. Ramachandran at (617) 638-8090 Monday to Friday between 9am and 5pm or by email at vasan@bu.edu and Dr. Levy at (508) 935-3400 Monday to Friday between 9am and 5pm or by email at levyd@nih.gov.

If you want to speak to someone not directly involved in the research study, please contact the Boston University Medical Campus (BUMC) Institutional Review Board at (617) 638-7207.



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What will happen in this research exam?

You will need to fast for 12 hours before you come to the study appointment for the blood draw. You can take your usual morning medication and drink water on the morning of your visit.

Your research examination will take place at the FHS Research Center at 73 Mount Wayte Avenue, Framingham, MA, or in your home or other residence. The onsite research exam will take around 4 hours to complete.

As before, we will

- draw a sample of blood for genetic and laboratory tests to better understand risk factors for heart disease and other diseases under investigation (for example, the amount and function of different types of cholesterol in your blood). The total blood draw will be around 120 mL, which is about 8 tablespoons. The blood draw will occur in two stages. The first blood draw soon after your arrival and the second blood draw after the Cardiopulmonary Fitness Evaluation.
- collect a urine sample
- measure your height and weight
- complete an electrocardiogram (ECG)
- record your blood pressure
- update your medical history information
- complete a test of vascular function that tests blood vessel (artery) stiffness by recording the blood pressure waveform
- ask you to sign a form to allow FHS to obtain copies of medical records, including Medicare records. The release form is valid to obtain these records unless canceled by you.
- contact you later by mail, email, or by phone to obtain additional information or to invite you to participate in further FHS related studies. You may also be invited to return for another examination in the future.

Surveys

We will also be asking you to complete questionnaires such as physical function, diet, exercise, memory and mood, and your lifestyle habits, including whether you smoke or use alcohol. Some of the questionnaires you will have seen before and others will be new to you.

Some of your responses will be recorded using a digital audio recorder. Recordings will be analyzed in conjunction with other study information. We will also use recordings to make sure that your responses are accurately documented.

There are some new research activities.

1. Cardiopulmonary Fitness Evaluation: The Cardiopulmonary Fitness Evaluation is designed to find out the efficiency of your heart, lungs, and circulation of blood. We will ask you to exercise on a stationary cycle while you are attached to machines that will record your breathing and heart function. We will ask you to pedal the cycle for as long as you are able. While you are pedaling you will breathe into a tube that will collect and measure the air you breathe in and out. Your heart rate and blood pressure will be watched throughout this activity. We will monitor your heart rate

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using an electrocardiogram (ECG) by placing small stick-on pads to your skin. This test will take about 30 minutes in total, with about 10-15 minutes spent actually exercising. At the end of this test, a blood sample of around 25 mL, or 2 tablespoons, will be drawn.

What risks can I expect? As with any moderate exercise you will become tired and short of breath; this is normal. It is likely that your heart rate and blood pressure will increase. In rare instances, abnormal changes may occur such as fainting, irregular heart beat and low blood pressure. In very rare instances heart attack may occur as in any other strenuous activity. Every effort will be made to minimize any possible problem by constant surveillance during testing as well as the ability to stop the tests at any time. Equipment and trained personnel are available to deal with unusual situations, should they arise.

Minimal bruising, pain, bleeding, or in rare circumstances, infection may occur, as a result of the blood draw. Also, although rare, some people feel lightheaded or faint when their blood is drawn.

2. **Bone Study:** High Resolution-Peripheral Quantitative Computed Tomography bone scan of the forearm and lower leg: While seated, we will place your forearm on a support and then place it inside the machine to take the scan. When we have completed the scan of your arm, we will do the same with your lower leg. It is important that you remain as still as possible for this scan.
Dual-energy x-ray absorptiometry scan of the hip and the whole body: This scan involves lying on a padded table and having the machine pass over and scan your hip and your entire body.

What risks can I expect? Having bone density tests involve the use of X-rays, which are a form of radiation. However, the radiation that you will be exposed to as part of this study is so small that there is no significant risk to your health.

Due to potential risk to the fetus, pregnant women, as determined by self-report or by a positive pregnancy test, will be excluded from this test.

3. **Desktop AGE Reader (Skin Test):** This test measures the amount of a special type of collagen in the skin of your forearm that can be affected by levels of blood sugar. The amount of the special type of collagen in the skin is related to the amount in the bone. We will clean your arm with a wet wipe. You will then place your bare forearm on the reader and it will shine a light on your skin to perform the measurement.

What risks can I expect? There are no known risks associated with the skin reader.

4. **Fibroscan:** The fibroscan is a test to measure the presence of fat or scarring in the liver. A painless pulse is generated on your skin that travels to the liver and measures how stiff your liver is.



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What risks can I expect? *There may be minor discomfort from the application of lubricating jelly and pressure on the skin from the fibroscan probe. However, there are no known risks associated with the fibroscan.*

There are some conditions that may interfere with the ability of the device to obtain valid measures. They include being pregnant, having fluid in the abdominal cavity (ascites), and having implanted medical devices, such as a heart pacemaker. We will ask, but please let us know if you have any of these conditions and we will not complete the fibroscan.

5. Additional Medical Record Release for Medicare Using Social Security Numbers: You will be asked if investigators and their research collaborators at other institutions, including Duke University, may link your Social Security Number to the Center for Medicare & Medicaid Services data to obtain Medicare information. Social Security Numbers will not be released to outside institutions for purposes not related to the study except with consent or as required by law.

What risks can I expect? *We do our best to protect your study information (see below). However there is still a risk of loss of confidentiality.*

Take home tests:

6. Electronic FHS (eFHS) Study: If you live in the US, have an email account with access to a daily Internet connection or have a smartphone, we will invite you to take part in the eFHS study. Taking part requires that you download apps and use wireless devices. The apps will require you to complete surveys regarding lifestyle and health, and the devices will measure heart rate, blood pressure, weight, and physical activity.

What risks can I expect? *There are no known risks to taking part in this study.*

7. Stool Sample Collection: We will ask you if you would like to use a kit to collect a stool sample at home and then to send the sample by mail to a laboratory. The purpose of this study is to better understand the causes of cardiovascular disease and diabetes, by studying what bacteria are present in your gut, and what biological functions they are performing. The take home kit contains instructions and supplies for the stool collection. The kit also contains a sheet with a few questions about how you have been feeling recently, the foods you have been recently eating and the appearance of your stool.

What risks can I expect? *The stool sample collection is inconvenient and might make you feel uncomfortable. You may also be uncomfortable answering some of the questions we ask you in the questionnaire that goes with your stool collection kit. You may choose to not answer any questions that you do not feel comfortable*

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answering. Your answers will be kept confidential and will not be associated with your name or personal identifying information.

8. Accelerometer: You will be asked to wear a physical activity monitor on a belt for a week and to return it to FHS. It measures how active you are throughout the day.

What risks can I expect? *There are no known risks to taking part in this study.*

General Risks: The research exam is time consuming and repetitive. Other discomforts include headaches, feeling hungry due to fasting, fatigue and chill during the visit. We do not expect any risk of injury as a result of your participation in the study. However, first aid will be available.

Unknown Risks: There may also be some risks that we are unable to determine at this time.

Genetic Studies

We plan to do genetic research on the DNA from your biological samples. The biological samples include blood cells, tissue cells, stool samples, etc. DNA is the material that makes up your genes. Genes are passed from parent to child. All living things are made of cells. Genes are the part of cells that contain the instructions which tell our bodies how to grow and work and determine physical characteristics such as hair and eye color.

Also, if you agree, we will process white blood cells from a sample of your blood to become stem cells in the laboratory. The resulting cells are known as Induced Pluripotent Stem Cells (iPS cells), and they will be used in the laboratory to act like cells from other organs, such as liver cells, fat cells, heart cells, lung cells, vascular cells, gut cells, nerve cells, different types of blood cells, and many other engineered or naturally occurring cell types. These cells and the cell products that can be obtained from them such as RNA, proteins, and metabolites may be studied in laboratories to learn more about the causes of health and diseases of these organs.

Your cells will be stored indefinitely in a stem cell repository at Boston University. Your cells may also be stored in a central repository or bank.

If you agree, your stored tissues, cells and any resulting iPS cell lines or their derivatives could be used in future related and unrelated research studies including:

- Injecting or transplanting the stem cells or their derivatives into animals for research purposes. Your samples may be used in research that involves genetic manipulation but they will not be used to clone or to otherwise create an entire human being.
- Testing for genetic and DNA composition. Genes may be analyzed and/or manipulated to study normal function or development, and some of the DNA in the stem cells or their derivatives may be altered.
- Other uses involving research or development of commercial products for the

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diagnosis, prevention, or treatment of various diseases.

- Samples (blood cells, the iPS cells, or their derivatives) obtained from you in this study may be used in the development of one or more diagnostic or therapeutic products which could be patented and licensed by those involved in the research or development of such products. There are no plans to provide financial compensation to you should this occur.

How will I learn the results of this study?

The main way results of research from this study are reported is in scientific publications and presentations at scientific meetings. Summary findings are also sometimes described in our newsletters.

We will also report some routine research test measurements to you and/or your health care provider at the time of the exam or after your visit. These may include, for example, blood pressure and cholesterol.

In some cases, if we determine it to be appropriate, we may report to you and/or your health care provider research findings as they relate to you, if you give your permission. This information, if it is reported, might be reported long after your visit for a number of reasons. As an example, it might take years of work to analyze information and arrive at research findings, possibly using newly developed scientific methods.

Our genetic research might generate findings that could be relevant to you and possibly your family members, such as information about a particular genetic variant that might put you at risk of a serious health condition. At this time, we believe that most of the genetic research findings do not have medical importance to individuals, but the field of genetics is changing rapidly.

We currently do not have specific plans to contact you or your health care provider about genetic or non-genetic research findings other than some routine research test measurements. In general, we cannot commit to providing any other research findings to you. In determining whether we share additional research information with you, we will take into account a number of considerations on a case-by-case basis. These might include whether the findings were based on tests that are clinically acceptable, accurate and reliable, whether the findings reveal a significant risk of a serious health condition, whether there is at the relevant time a recognized treatment or prevention intervention or other available actions that have the potential to change the clinical course of the health condition, whether reporting or not reporting the results is likely to increase the risk of harm to you, and other relevant factors that we might not be able to predict at this time.

Research test measurements and findings are not the same as clinical test results. As such, our research examination is not necessarily performed by individuals with clinical training and qualifications, and many parts of the examination do not meet the standards for certified clinical testing. For these reasons, our research tests should not be relied on to make any diagnosis,

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treatment, or health planning decisions. We do not provide health care or give medical advice or genetic testing or provide counseling. If you or your health care provider decides that follow-up tests or treatments are necessary, then you (or a third party such as a health insurance carrier or Medicare) will be responsible for the cost.

How are my samples and information shared with other researchers?

Samples and information will be kept indefinitely. If you agree, your data and donated blood, blood cells, resulting iPS cells or their derivatives, urine, and any other specimens may be shared with other researchers. These include other academic, non-profit, and for-profit entities, including but not limited to hospitals, universities, cell/tissue storage banks and repositories, databanks and data repositories, and businesses, whether for related or unrelated research studies. They will not be labeled with your name or other direct personal identifiers, only a code.

Coded audio recording information will be analyzed by qualifying collaborators inside and outside of BUMC. Your name and other direct personal identifiers will not be shared with these entities.

You have the right to refuse to allow your data and samples to be used or shared for further research. Please check the appropriate box in the selection below.

If you give your permission to allow your data and biological samples to be used or shared for further research, you may withdraw your permission at any time by contacting the FHS investigators. However, if your data or samples have already been released to other researchers, we will not be able to instruct the other researchers to stop using them, to destroy them or products made from them. Your data and samples will not include your name or other direct identifiers.

What risks can I expect?

Participating in genetic research could have a negative impact on you, your family, and your loved ones. The genetic studies might result in research findings that relate to your risk of a serious health condition or other genetic information that we might consider to be appropriate to report to you and your health care provider, if you wish us to report them (see below). This could present you with some difficult decisions regarding the available information and the disease risks you and your family members might face. Knowledge of genetic research findings can provoke anxiety and influence decisions regarding marriage, family planning, and other matters.

How is my information protected?

We take steps to make sure that the personal information we collect about you is kept private and secure. We *label* your samples and information with a code, and we keep the key to the code in a password protected database. Only approved staff is given the password. We use other safeguards at our facilities and for our information technology and systems to protect the privacy and security of your information.
We do not sell, rent, or lease your contact information.



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If information from this study is published or presented at scientific meetings, and when your samples and information are shared with other researchers and deposited in data and specimen banks and repositories, your name and other direct personal identifiers will not be used.

However, we cannot guarantee total privacy. We may give access to your information in order to do the study and to make sure we do the study according to certain standards set by ethics, law, and quality groups. Information may be made available to researchers that are part of this study, the Institutional Review Board that oversees this research, research and non-research staff and organizations who need the information to do their jobs for the conduct and oversight of the study, people or groups that we hire to do work for us (such as data or biosample storage companies, insurers, and lawyers), and Federal and state agencies as required by law or if they are involved in the research or its oversight. In most cases, any information that is given out to others is identified by code and not with your name or other direct personal identifiers. Once information is given to outside parties, we cannot promise that it will be kept private. Please be aware that your personal information may be given out if required by law (e.g., to prevent possible injury to yourself or others).

To help us further protect your privacy, the investigators have obtained a Certificate of Confidentiality from the Department of Health and Human Services (DHHS). With this Certificate, the investigators cannot be forced (for example by court subpoena) to disclose research information that may identify you in any Federal, State, or local civil, criminal, administrative, legislative, or other proceedings. Disclosure will be necessary, however, upon request of DHHS for audit or program evaluation purposes. A Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer or employer learns of your participation, and obtains your consent to receive research information, then FHS is not allowed to use the Certificate of Confidentiality to withhold this information. This means that you and your family must also actively protect your own privacy. Finally, you should understand that the Certificate of Confidentiality does not prevent the investigators from taking steps, including reporting to authorities, to prevent serious harm to yourself or others.

Patenting Discoveries

Research from this study may, one day, result in new tests to diagnose or predict diseases. It may also lead to the development of new ways to prevent or treat diseases. As is true of all federally-funded research, researchers and their employers are permitted by Federal law to patent discoveries from which they may gain financially. You and your heirs will not benefit financially.

What are the possible benefits from being in this research study?

You will not be paid for your participation in this study, and you will not receive any personal health benefits as a result of your participation in this study. We hope that this study will help us better understand what causes heart disease and other diseases and conditions and how to better prevent and treat them.



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What are the costs of taking part in the study?

Costs that you may incur on the day of your participation include, but are not limited to, loss of work and transportation costs (gas, tolls, etc.).

No special arrangement will be made by the Framingham Heart Study for compensation or payment solely because of your participation in this study. If you think you have been injured by being in this study, please let the investigators know right away. Boston University and the sponsors do not offer a program to provide compensation for the cost of care for research related injury or other expenses such as lost wages, disability, pain, or discomfort. You will be sent a bill for the medical care you receive for research injury if your medical insurance does not pay for your medical care. This does not waive any of your legal rights.

How long will I be in the study?

FHS is a long term study.

Taking part in this research study is up to you. You can decide not to take part. If you decide to take part now, you can change your mind and drop out later.

We will tell you if we learn new information that could make you change your mind about taking part in this research study.

The investigator may decide to discontinue your participation without your permission because he/she may decide that staying in the study will be bad for you, or the sponsor may stop the study.



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Please read the following statements and check the appropriate box below:

- 1) I agree to participate in the FHS examination, including the collection of data, blood, urine samples, and various research tests and measurements. I agree to the use of all data, samples, and research materials for studies of the factors contributing to heart and blood vessel diseases, lung and blood diseases, stroke, memory loss, cancer, and other diseases and health conditions.

YES NO (Office Code 0)

- 2) I agree to allow Induced Pluripotent Stem Cells (iPS cells) to be made from my blood and altered so that they function like cells from other organs.

YES NO (Office Code 13)

- 3) I agree to allow my data, blood, DNA and other genetic material, iPS cells and their derivatives, urine samples, and any other specimens to be used in genetic research, of factors contributing to heart and blood vessel diseases, lung and blood diseases, stroke, memory loss, cancer, and other diseases and health conditions.

YES NO (Office Code 3)

- 4) I agree to allow researchers from commercial companies to have access to my data, blood, DNA and other genetic material, iPS cells and their derivatives, urine samples, and any other specimens for research. I understand that my data and specimens will be shared without my name or direct personal identifiers.

YES NO (Office Code 4)

- 5) I agree to allow the FHS to release the findings of non-genetic research tests and examinations to me and/or my physician, clinic, hospital, or other health care provider.

YES NO (Office Code 30)

- 6) I agree to allow the FHS to provide me, and with my permission, my physician, clinic, hospital, or other health care provider information relating to genetic research findings as they may relate to me.

YES NO (Office Code 31)

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Signing this consent form indicates that you have read this consent form (or have had it read to you), that your questions have been answered to your satisfaction, and that you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.

Participant's Signature	Printed Name	Date
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Legally Authorized Representative (LAR)'s Signature	Printed Name	Date
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Person Obtaining Consent Signature	Printed Name	Date
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