Consent

Exercise Regulation of Human Adipose Tissue

NCT03133156

July 21st, 2023

Joslin Diabetes Center

Committee on Human Studies

Informed Consent for Biopsy Procedure

Participant's Name: _____

Participant's Status: ☐ **Joslin Patient** ☐ **Non-Joslin Patient** ☐ **Employee**

Principal Investigator: Laurie J. Goodyear, PhD

Co-Investigator(s): Roeland J. Middelbeek, MD and Sarah J. Lessard, PhD

Study Title: Exercise Regulation of Human Adipose Tissue

Study Sponsor: NIH RO1 grant funding

Study Contact: Roeland Middelbeek, MD
617-309-1953 / 617-309-2573

This is an important document. This document specifically describes a surgical protocol. You have already been explained the details of the overall study protocol and consented for this.

You should take the time to read this document carefully. If you choose, you may take a copy of this document to discuss with your physician, legal counsel, family member or any one else you would like before signing it.

This document may contain information or words that are difficult to understand. It is very important that you ask the study investigator or a member of the study staff to explain any words or information that you do not understand.

Your participation in this research study is completely voluntary. If you agree to participate in this study, you will be asked to sign this form to show your consent to participate and your authorization for the use and/or disclosure of your medical information.

Do not sign this document unless you are comfortable with your decisions regarding both your consent to participate in this research study and your authorization for the use and/or disclosure of your medical information for this research study.

Participant's Initials: _____

Purpose of Protocol

The purpose if this study is to evaluate if a 10-week exercise program for 10 weeks can lead to changes in fat tissue. We plan to analyze the fat tissue to see if there are any changes to its structure and composition and we plan to detect if there are hormones being produced in the fat tissue that have a beneficial effect elsewhere in the body. You have already agreed to participate in the study, which includes two adipose tissue biopsies. This document again reviews this procedure and requests consent to proceed with this procedure.

Study Procedures

- ☐ You will be asked to lie on a bed in the supine (face up) position for the procedure.
- ☐ We will expose the site of the biopsy, which is the abdomen.
- ☐ Sterile drapes will be placed around your abdomen to protect your clothing and the site will be sterilized using alcohol and iodine.
- ☐ We will numb the skin with cold spray and lidocaine.
- ☐ Once the area is anesthetized, a small incision will be made, and a small amount of saline will be injected under the skin.
- ☐ Using a biopsy needle with negative pressure, a small amount of adipose tissue will be collected. This will be repeated until adequate tissue is collected.
    - In case only little fat tissue will be obtained, we may attempt another biopsy on the other side of the abdomen, to obtain an adequate adipose tissue specimen.
- ☐ Once enough tissue has been collected the needle will be removed and pressure will be applied to the area. Once any bleeding has stopped, the surgical site will be dressed and you will be provided with care instructions for the area to minimize the risk of infection.

Aftercare instructions will be provided. In case you have any questions or concerns, you can contact the study team at the contact information outlined above.

Important Information about Biopsy Procedure

You should understand that any procedure(s) and/or test(s) conducted as a part of this study are done solely for the purposes of research and any information which results from this study is not to be interpreted for any other reason whatsoever. Further, the researchers in this study will be looking at and interpreting specific results for a very limited purpose and many potential medical findings and/or abnormalities could go unnoticed and/or undetected. If for any reason, a researcher has reason to believe that an abnormality may exist, you will be advised to seek independent medical attention. However, please understand that in no way are the study researchers and/or the Joslin Diabetes Center responsible for, or required to diagnose you for any potential medical condition.

Risks, Potential Risks and/or Discomforts

The major risk of the fat tissue biopsy includes discomfort from the injection of the biopsy needle, which will be minimized by using lidocaine. There is a risk of small bleeding, which could lead to a bruise. There is also a small risk of infection, lightheadedness, and/or fainting. There is a risk of localized soreness and discomfort of biopsy area following the the procedure.These complications usually resolve spontaneously or with local heat application. Rarely, both bleeding and infection may progress and lead to a life-threatening illness requiring

Participant's Initials: _____

emergent care. Since a needle insertion into the skin will be used, you may develop a small scar, although every effort will be made to minimize this.

Removal from Study

Your participation in this research study may be discontinued before you complete the study if circumstances arise which make this necessary. Your participation may be discontinued for any of the following reasons:

- Refusal to undergo the adipose tissue biopsy
- Failure to follow the study protocol
- Change in your medical condition
- Discontinuation of the study for any reason by the sponsor, investigator, Joslin Diabetes Center, or government agencies
- Other reasons, including new information available to the investigator or harmful unforeseen reactions experienced by research participants in this study

If you are discontinued from the study for any reason, this will have no effect on your current or future relationship with the Joslin Diabetes Center. You will not be penalized or lose any other benefits to which you are otherwise entitled.

Participant's Initials: _____

Joslin Diabetes Center, Informed Consent & Authorization (June 2014)

VOLUNTARY CONSENT & AUTHORIZATION

I understand that no one has contacted my primary care physician or any other doctor from whom I may be receiving care regarding my involvement in this research study. I understand that I should consult with any such doctor, and have been encouraged to do such, prior to participating in this study to discuss whether there is any reason he/she is aware of why I should not participate in this study.

I have been informed of and understand the purpose of the research study entitled "Exercise Regulation of Human Adipose Tissue" and the study's procedures. I have been informed of and understand the foreseeable risks, potential risks, discomforts, and benefits associated with this study. I have been advised of and understand that unforeseen complications may occur. I understand that I may or may not be entitled to free medical care or compensation in the event that I am injured as a result of my participation in this study. I understand that if this research study should result in the development of any marketable product, it is not expected that any profits would be shared with me.

I have been informed of and understand that my medical information may be used and/or disclosed for the purpose of this research study. I understand that the study investigators, study staff, and the Joslin Diabetes Center will make all reasonable efforts to protect my privacy and confidentiality. I have been advised of and understand that there is a risk that my medical information may be obtained by others. I have been advised of and understand that if others obtain my medical information, my medical information may no longer be protected, and may be subsequently used and/or disclosed without my permission. I have been informed of and understand that this study may be published or otherwise shared for scientific purposes. I understand that my name will not be published and that every reasonable effort will be made to protect my confidentiality.

I have been informed of and understand that my participation in this study is completely voluntary. I may refuse to consent to my participation in this study. Once enrolled in this study, I may withdraw my consent or refuse a procedure at any time. I may refuse to authorize the use and/or disclosure of my medical information for the purpose of this study. Once enrolled in this study, I may withdraw my authorization at any time. I have been informed of and understand that I will not be allowed to participate in this study, or continue my participation in this study, without both my consent and authorization.

I have read this document and been provided with the opportunity to discuss any questions and/or concerns regarding the research study and/or this document with the study investigator or a member of the study staff. I have received the Joslin Diabetes Center's Notice of Privacy Practices.

I have been informed of and understand that I may contact the Joslin Diabetes Center's Committee on Human Studies if I have questions regarding my rights as a research participant in this study. I may contact either:

- **Leigh A. Read**, CHS Program Administrator, at **(617) 309-2543**
- **Robert C. Stanton, M.D.**, CHS Chairperson, at **(617) 309-2477**

I have been informed of and understand that I may contact the Joslin Diabetes Center's Chief Audit and Compliance Office if I have questions regarding my rights associated with the use and/or disclosure of my medical information. I may contact:

- Joslin Diabetes Center's Compliance Officer, at **(617) 309-2400**

This is a legal document that may affect my legal rights, my rights to privacy and my medical conditions and information. I understand that I have had the opportunity to consult with legal counsel, and my own physician about this study before signing this form.

Participant's Initials: _____

I, _____ hereby consent to participate in this study and authorize the use and/or disclosure of my medical information for this research study, as described in this document.

_____ _____

Signature of Participant or Participant's Representative *Date*

_____ _____

Participant or Participant's Representative (Print Name) *Relationship to Participant*

Joslin Diabetes Center, Informed Consent & Authorization (June 2014)

VERIFICATION OF EXPLANATION

I hereby certify that I have explained to the above-named participant the purpose of the study entitled "Exercise Regulation of Human Adipose Tissue", the nature of the study procedures, and such foreseeable risks, potential risks, discomforts, and benefits that may result from their participation in this study. This explanation was made in appropriate language. I have advised the above-named participant to contact their primary care doctor regarding his/her participation in this study, if such contact has not been previously made. I have asked the above-named participant if they have any questions and/or concerns regarding this research study or any of the study's procedures, and I have answered his/her questions to the best of my ability.

I hereby certify that I have explained to the above-named participant the nature and purpose of the use and/or disclosure of his/her medical information, including the possibility that his/her medical information may be obtained by others. This explanation was made in appropriate language. I have asked the above-named participant if they have any questions and/or concerns regarding the use and/or disclosure of his/her medical information for the purpose of this research study, and I have answered his/her questions to the best of my ability.

I hereby certify that I have informed the above-named participant that his/her participation in this research study is completely voluntary. To the best of my knowledge, the decisions made by the above-named participant regarding his/her consent and authorization are accurate reflections of his/her personal choices. To the best of my knowledge, the above-named participant has not been coerced or induced into his/her participation in this research study.

_____ _____

Signature of Investigator or Investigator's Representative *Date*

_____

Investigator or Investigator's Representative (Print Name)

Participant's Initials: _____

Joslin Diabetes Center

Committee on Human Studies

Informed Consent & Authorization Form

Participant's Name: _____

Participant's Status: ☐ **Joslin Patient** ☐ **Non-Joslin Patient** ☐ **Employee**

Principal Investigator: Laurie J. Goodyear, PhD

Co-Investigator(s): Roeland J. Middelbeek, MD and Sarah J. Lessard, PhD

Study Title: Exercise Regulation of Human Adipose Tissue

Study Sponsor: NIH RO1 and K23 grant funding

Study Contact: Roeland Middelbeek, MD
617-309-2573 / 617-309-1953

This is a long and important document. This document describes a research study and explains how your medical information will be used and/or disclosed for the purposes of this research study, if you choose to participate.

You should take the time to read this document carefully. If you choose, you may take a copy of this document to discuss with your physician, legal counsel, family member or anyone else you would like before signing it.

This document may contain information or words that are difficult to understand. It is very important that you ask the study investigator or a member of the study staff to explain any words or information that you do not understand.

Your participation in this research study is completely voluntary. If you agree to participate in this study, you will be asked to sign this form to show your consent to participate and your authorization for the use and/or disclosure of your medical information.

Do not sign this document unless you are comfortable with your decisions regarding both your consent to participate in this research study and your authorization for the use and/or disclosure of your medical information for this research study.

Participant's Initials: _____

Purpose of Study

You are being asked to participate in a research study. The purpose of this study is to find out whether exercise leads to changes in abdominal fat tissue and if these changes produce new hormones that affect the body's regulation of sugar.

Recent work in the laboratory at the Joslin Diabetes Center and elsewhere has shown that when small animals exercise they improve their muscles and blood sugar levels. These animals also show changes in their abdominal fat tissue compared to animals that did not exercise. Our data suggests that the fat tissue from trained mice also has a positive effect on other tissues in the same animal. Therefore, there could be new factors or hormones, which come from the trained animals' fat tissue and which exert a positive effect on the animals' blood sugar levels. Large studies with human volunteers have shown that exercise can improve blood sugar uptake into skeletal muscle and lower blood sugar levels, thereby preventing type 2 diabetes. The purpose of this study is to evaluate if an exercise program for 10 weeks can lead to changes in fat tissue. We plan to analyze the fat tissue to see if there are any changes to its structure and composition and we plan to detect if there are hormones being produced in the fat tissue that have a beneficial effect elsewhere in the body.

This study will enroll 76 participants, 38 participants who are lean, 28 participants who are overweight or obese, but do not have type 2 diabetes and 10 participants who are overweight or obese and have type 2 diabetes. Lean subjects will be randomized to either medium or high intensity training. All others will undergo medium intensity training.

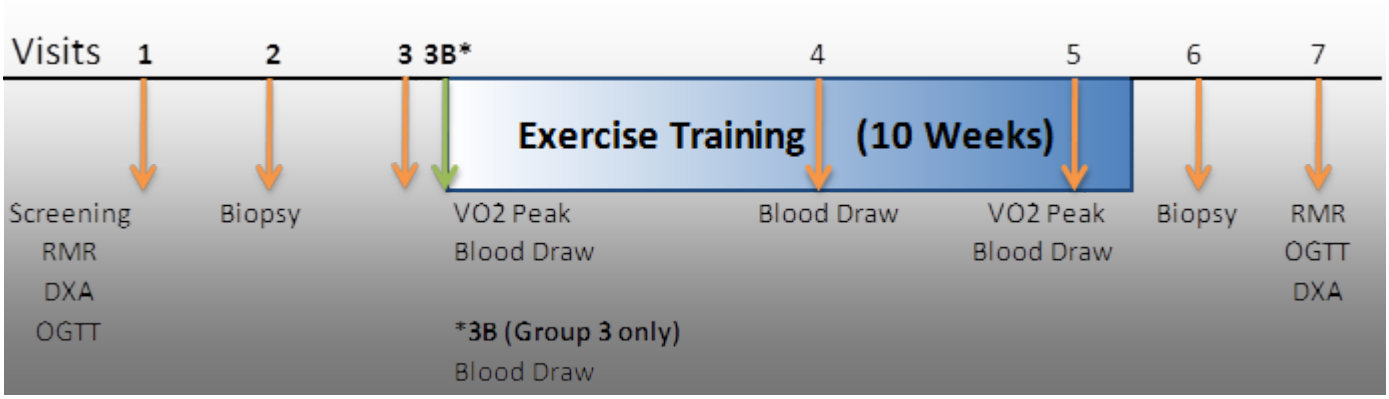
This study will be supported by funds from the National Institutes of Health.

Study Procedures

A member of the study staff will explain the study to you, review this consent form with you, and answer any questions you may have. If you would like to take part in the study you will be asked to sign this consent form before any study procedures are done.

This study involves seven to eight study visits to the Joslin Diabetes Center as well as a 10-week exercise program, which anticipates up to a maximum of 40 training visits to the Joslin Diabetes Center. To complete this study, you will need to have internet access.

The first three to four visits will be scheduled in a four week period. Visit 6 will take place within 24 hours after the completion of the 10-week exercise program and Visit 7 will occur 1-3 days before or after visit 6. The total duration of the study will therefore be 13-15 weeks. Some of the visits may be scheduled in different order, if absolutely necessary to accommodate scheduling.



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First Visit at the Joslin Diabetes Center

The first Joslin visit will last about 5 hours. You need to fast for this visit and you should not take your medications on the morning of this visit, as will be explained during the pre-screening.

- First, the study will be explained to you in detail and informed consent will be obtained.
- Your blood pressure, height, weight, and waist circumference will be measured and recorded.
- You will complete short surveys about basic information that will include age, sex, weight, height, family history, diet, physical activity and past medical history. We will also ask if you have internet access.
- A resting metabolic rate (RMR) measurement will be performed, which measures the rate of energy expenditure of your body at rest. The procedure will be explained and you will lay down on the stretcher. The metabolic cart, used in Visit 3 for exercise testing will be used for this measurement. You will breathe into a metabolic hood while laying down for up to 20 minutes.
- A blood sample will be drawn from a vein to measure your HbA1c level, which measures the level of blood sugar over the past 2-3 months. If you are a Joslin patient and had an HbA1c within two months of study visit 1, your HbA1c value will be recorded from your medical record and you will not have an HbA1c test at study visit 1. We will also draw fasting blood to measure blood sugar, insulin, inflammation markers (named TNF-α, and IL-6), lipids (fats in the blood), and other hormones that are made by fat tissue. This blood sample may also be used to test for changes in genes if you consent (see below). Next, a resting metabolic rate (RMR) measurement will be performed, which measures how much energy your body uses at rest. The procedure will be explained and then you will lie down on the stretcher. The metabolic cart, used in Visit 3 for exercise testing will be used for this measurement. You will breathe into a metabolic hood while lying down for up to 20 minutes.
- A body composition analysis will be performed by a DXA machine. For DXA analysis, you must not have had any radiographic barium studies within the past week, as this will be seen in the digestive track and interfere with the measurement of bone densitometry. Any metallic implants or previous fractures will be annotated during the analysis. No radiation protection via radiographic shielding will be used as the radiation exposure is minimal. A technician who will perform the test will ask you to remove all clothing or body jewelry with metal. This includes bra, jeans and any clothing with metallic accents or embroidering. You will be provided a hospital gown to wear. You will be instructed to lay flat on the table and to breathe normally, without movement for the duration of the scan. This test should take approximately 10 mins.
- Finally, an Oral Glucose Tolerance Test (OGTT) will be performed. This will measure how your body responds to sugar. A study doctor or nurse will place an IV catheter, a tiny plastic tube, into one of your veins. This catheter will be for taking blood samples to look at levels of blood sugar and hormones. You will be given a drink containing 75-grams of sugar. After this, the test will start and a blood sample will be taken from your IV line at 15, 30, 60, 90 and 120 mins after the start of the test. If your blood sugar level is too high (more than 140mg/dl) 2 hours after the sugar drink, there may be a chance you cannot continue to participate in the study. If you sugar level is within the study criteria, you can continue with the study. This test will take about 2.5 hours, including set-up. The total amount of blood that will be taken during this procedure is about 14.5 tablespoons, or 7.75 ounces.

Genetic Research

As part of this research, a portion of the blood and adipose tissue sample that you give will be used to extract a chemical called DNA. DNA is the genetic material (including the genes, which are a blueprint for you) that you inherited from your parents and passed on to any of your children. Your DNA will be examined only for what genes are related to exercise training. The results of the examination of your DNA will not be given to you, because this is being done only for research purposes.

Your DNA will be examined by researchers at the Joslin Diabetes Center and may be shared with researchers at other institutions for purposes other than this research. You understand that your DNA may be stored indefinitely at the Joslin Diabetes Center until all has been used up in the examination for genes. Since all the possible ways of examining DNA are not known at this time, any unused samples will be stored and may be

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used for research purposes that may not be limited to identifying genes related to improvements in exercise of blood sugar regulation after exercise training. You understand that if you change your mind about allowing your DNA to be studied, your DNA samples at the Joslin Diabetes Center will be destroyed. However, it cannot be guaranteed that all DNA samples will be retrieved and destroyed since some of these may have been shared with other researchers at other institutions.

Because of all this, your DNA samples will be identified with a special code (a number) only known to the researchers at the Joslin Diabetes Center and will be stored in a confidential manner. If a sample is shared with researchers from other institutions and/or used for purposes other than this research, your identity will remain anonymous

You may still participate in this study even if you do not agree to have your DNA examined.

By checking "yes" in the box below, you give permission for your DNA to be collected and used as described above.

□ YES □ NO Subjects' initials_____

Additional Analysis of Blood Collected
The remaining fraction of the blood, which contains blood cells, will be analyzed by Fluorescence Activated Cell Sorting (FACS) to determine the number of specific cell types, including cells inside blood vessels. This analysis will determine how exercise affects the number of specific cell types in the blood that can regulate metabolic health.

Second Visit at the Joslin Diabetes Center
The second Joslin visit will last about 3 hours, including preparation time. You will need to fast (no food or drink except water) for 8 hours before this visit and you should not take medications the morning of the visit. Once all study procedures are complete, you can take your medications.

ECG & Fat Tissue Biopsy
During the second Joslin visit, a fat tissue biopsy will be performed . The procedure will be explained to you in detail and you will be able to ask questions before starting. We will ask you to lie down on the examination table. First we will do an electrocardiogram (ECG) to check the electrical activity in your heart. We will place several small, sticky pads on your chest. Each pad has an attached wire. The wires connect to a machine that makes a recording of your heart rhythm. If everything looks normal on the ECG according to the doctor who reads it, we will continue and to the fat biopsy procedure.

Your abdomen will be exposed and disinfected. The site of the fat tissue biopsy will be numbed with an injection of lidocaine (a local anesthetic). A numbing cream may be applied to reduce the discomfort of the lidocaine injection. We will make a very small puncture with the blade of a scalpel. A fat tissue biopsy will be obtained with a 12-gauge biopsy needle (2.1mm in diameter) by gently inserting the needle under the skin at an angle and pulling back so that a small amount of tissue will be obtained. We may use small amount of sterile normal saline under the skin, so that it will be easier to obtain the fat cells. The tissue will then be removed and pressure will be applied to your abdomen with sterile gauze. The biopsy site will then be covered with thin adhesive strips. Pressure will be applied for an additional 5 minutes. If too little fat tissue is obtained, we may attempt another biopsy on the other side of the abdomen, or may invite you for another separate and voluntary biopsy visit, to obtain an adequate adipose tissue specimen. This biopsy has been performed at the Joslin Diabetes Center many times and is generally well tolerated. At this point you will be able to take your diabetes medication if needed.

Third Visit at the Joslin Diabetes Center

Participant's Initials: _____

The third visit will last approximately 2 hours and is also the start of the exercise program. You do not need to fast prior to this visit. The visit will include instructions about the exercise program by the exercise physiologist. Also, a fitness test will be performed (see below). You do not need to fast for this visit.

Fitness Test
You will be asked to perform a VO_2 peak test to determine your peak exercise capacity (aerobic or cardiovascular fitness test) by a Joslin exercise physiologist. VO_2 peak is defined as the peak rate of oxygen consumption as measured during an exercise test. This test determines your aerobic fitness level by measuring the maximum amount of oxygen you use during exercise.

First we will do an electrocardiogram (ECG) to check the electrical activity in your heart as described above. If you have type 2 diabetes, you will be asked to check your blood sugar with a finger stick to ensure that it is at a safe level for exercise. If you are on insulin or insulin combined with oral medications, your blood sugar must be at least 130 mg/dL before beginning the test. If you are on oral medications alone, your blood sugar must be at least 100 mg/dL before beginning the test. You will be given juice and a snack to help raise your blood sugar if it is below the required value, and you will re-check your blood sugar every 15 minutes until it is above the required value.

You will be asked to exercise on a bicycle. At intervals during the test, the resistance of the bike will increase. You will be asked to keep cycling until you feel you no longer can continue or if the study team determines you are approaching your maximum heart rate. During the fitness test, we will again use an ECG to monitor your heart rate, and your blood pressure will also be measured. In addition, every 2 minutes we will be checking with you and will ask you to rate (by pointing to a chart we show you) your level of exertion (physical effort). During this test, you will breathe through a mask to measure your energy output.

An exercise physiologist will administer the test, and a physician will monitor you during this test to ensure your safety. This test will take approximately 40 minutes.

To assess the effects of acute exercise, 15 minutes before the exercise test, right after the exercise test and after 30 mins of rest, blood will be drawn after placement of an IV catheter to measure blood sugar, insulin, inflammation markers (named TNF-α, and IL-6), lipids (fats in the blood), and other hormones that are made by fat tissue. The approximate amount of blood needed is one tablespoon per blood draw. This blood sample may also be used for genetic testing if you consent (see above). A finger stick or an earlobe stick will be done at baseline and at the peak of the exercise test to measure lactate, which can be produced as a byproduct of exercise.

At any point, if you feel you need to stop, just raise your hand and we will stop the procedure

Activity Tracker
You will be given a wearable activity tracker and heart rate monitor, which you will be asked to wear for the remainder of the study. You will receive instructions about how to use the activity tracker and heart rate monitor and how to log your activities in the computer. You will sign a form indicating that you received the tracker.

- At the time of the last visit at Joslin, which marks the completion of the study, you will return the activity tracker to the study staff in order to receive study participation reimbursement. You will receive a copy of the form you signed, indicating that you have returned the tracker.

Additional Visit (3B) at the Joslin Diabetes Center:
If you have type 2 diabetes, we are interested in the effects of an exercise bout on reductions in blood glucose. We ask you to have another Visit at Joslin to perform a 45min aerobic exercise session, prior to starting the exercise training protocol.

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You will be given a standardized drink to drink at home at 7AM, and report to the Clinical Research Center around 10AM. You can start the visit with a finger stick blood glucose between 100-200mg/dl. An IV catheter will be placed and a baseline blood sample will be collected. You will exercise on the treadmill for 45 mins at approximately 75% of your peak capacity. Blood samples will be collected through an IV catheter at baseline, 15 min into exercise, at the end of exercise, and 15, 30, 45, 60 and 75 min after exercise completion, so that we can monitor any changes in blood glucose. The study visits will be concluded after the last blood sample is taken. If you develop low blood glucose (blood glucose decreases <70mg/dl), you will be treated per the protocol (given 15 grams of carbohydrates).

Exercise Program

Before participating in the exercise program, you must be cleared for activity by your clinician or the study physician (prior to first fitness assessment during Joslin Visit 3). The 10-week medium intensity exercise program will involve a minimum of two, but up to four supervised 45 to 60-minute (including warm-up and cool-down) sessions per week using aerobic training at the Joslin Diabetes Center, for a total of maximum 40 exercise visits. You will use a treadmill, stationary bicycle, recumbent stepper, or elliptical trainer, or other aerobic exercise equipment. You will gradually increase the intensity of your exercise over the course of the study. During exercise, you will use a heart rate monitor to measure exercise intensity, and the exercise physiologist will give you instructions on how to use it.

During sessions at the Joslin Diabetes Center, blood sugar measurements will be taken to prevent hypoglycemia if you have type 2 diabetes. Also, if you have type 2 diabetes, prior to each exercise session, you will be asked to check your blood sugar with a finger stick to ensure that it is at a safe level for exercise. If you are on insulin or insulin combined with oral medications, your blood sugar must be at least 110 mg/dL before beginning exercise. If you are on oral medications alone, your blood sugar must be at least 90 mg/dL before beginning exercise. For the VO_2peak testing, which requires higher intensity exercise, a higher blood glucose targets of 130 mg/dl and 110mg/dl respectively will be used. You will be given juice and a snack to help raise your blood sugar if it is below the required value, and you will re-check your blood sugar every 15 minutes until it is above the required value. The exercise physiologist will discuss symptoms of hypoglycemia with you prior to beginning exercise, and you will check your blood sugar during exercise sessions if you experience any of these symptoms. You will also be required to check your blood sugar after each exercise session if you have type 2 diabetes.

The exercise physiologist will also explain 1) ways to gauge appropriate exercise intensity, 2) the importance of hydration, and 3) the need to report symptoms of low blood pressure to your primary care physician or the study physician. Symptoms of low blood pressure include dizziness, light-headedness, nausea, shakiness, and/or weakness. Joslin Diabetes Center staff will also give you guidance on how to overcome barriers to exercise.

From the start of the medium intensity training (MIT) program, you will be allowed to exercise at home instead at Joslin of up to two visits per week. Here you will exercise independently from supervision by the exercise physiologist. However, you still may also come to the Joslin Diabetes Center to exercise up to four times per week. For the MIT training program, you will complete a minimum of 20 visits at Joslin, while completing up to 20 sessions at home, or a maximum of 40 visits at Joslin and no at home session. You will be given a wearable activity tracker to monitor your activity remotely. You will be asked to log all physical activity you perform at any time of the week on your device and on the website of the activity tracker system as well as to use the heart rate monitor. The wearable activity tracker will be the 'Fitbit' system and the associated website where information will be logged is Fitbit.com. You will be given instructions on how to use this website and how to log your activities, and you will be given a login for this system. When you exercise at home, we will monitor your logged activities through the website. We will communicate with you by phone or email to see how you are doing, answer any questions you may have and encourage you increase your exercise if you

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have not been active for a few days. You can also always contact us. If illness or travel prevents adherence to the exercise program, the missed time will be added to the latter half of the 10-week period.

HIT Exercise Training Program
If you are randomized to a high-intensity interval (HIT) training program, you will be given instructions by the exercise physiologist. For the first two sessions, HIT training will consist of 4 x 30 seconds of all-out cycling efforts with 4 min of recovery between exercise bouts. For the 3rd and 4th training sessions, this will be increased to 5 x 30 seconds, and beginning at the 5th training session will be increased to 6 x 30 seconds for the remainder of the 10 week training program. The HIT Exercise Training Program will be performed at Joslin three times/week without an 'at home' component. If illness or travel prevents attending any of the required exercise sessions, the missed time will be made up at the latter half of the 10-week period.

For both the MIT and HIT exercise training program, you may perform the exercise training session at Joslin both during normal business hours (8am-5pm) and outside normal business hours in coordination with the exercise physiologist. You should be aware that outside regular business hours, emergency medical assistance at Joslin may not be readily available and that you may need to proceed to the ER in case medical assistance is needed. You are expected to complete at total of 30 exercise training sessions.

Fourth Visit at the Joslin Diabetes Center
For the MIT program, during week 5, you will undergo a submaximal exercise bout for 45 min at the heart rate target corresponding to 75% of your peak capacity. Blood draws will be obtained before, immediately after the exercise test, and after 30 minutes of rest after the test. You do not need to fast for this visit, but will be given a standardized drink to be consumed about 3 hours prior to visit. A finger stick or an earlobe stick will be done at baseline and at the end of the 45 minute exercise bout to measure lactate, which can be produced as a byproduct of exercise.

For the HIT program, during week 5, you will undergo a regular HIT exercise session. Blood draws will be obtained before, immediately after the exercise session, and after 30 minutes of rest after the session. You do not need to fast for this visit.

Visit 5 will be done in place of the first or second training session of week 10. Visit 6 will be within 24 hours of the last training session and Visit 7 will occur up to 3 days before or after visit 6. Visits 2 and 3, and 5, 6 and 7 may be scheduled in different order, if absolutely necessary to accommodate subject's schedules.

Fifth Visit at the Joslin Diabetes Center
During the beginning of the exercise training program, you will visit the Joslin Diabetes Center and complete a fitness test, as described in the "Third Visit at the Joslin Diabetes Center" section above. At this visit, that fitness test will be repeated. This will be done in order to assess the effect of the exercise training program on your overall fitness.

Also, to assess the effects of acute exercise, 15 minutes before, directly after, and after 30 minutes of rest following the exercise test blood will be drawn again to measure blood sugar, insulin, inflammation markers (named TNF-α, and IL-6), lipids (fats in the blood), and other hormones that are made by fat tissue. The approximate amount of blood needed is one tablespoon per blood draw (3 tablespoons total). This blood sample also may be used for genetic testing if you consent (see above). A finger stick or an earlobe stick will be done at baseline and at the peak of the exercise test to measure lactate, which can be produced as a byproduct of exercise.

Sixth Visit at the Joslin Diabetes Center
The sixth Joslin visit will last about 2 hours, including preparation time. This visit will occur 24-48h after the last training session and is similar in content compared to the 'Second Visit at the Joslin Diabetes Center'. You will need to fast (no food or drink except water) for 8 hours before this visit and you should not take medications

Participant's Initials: _____

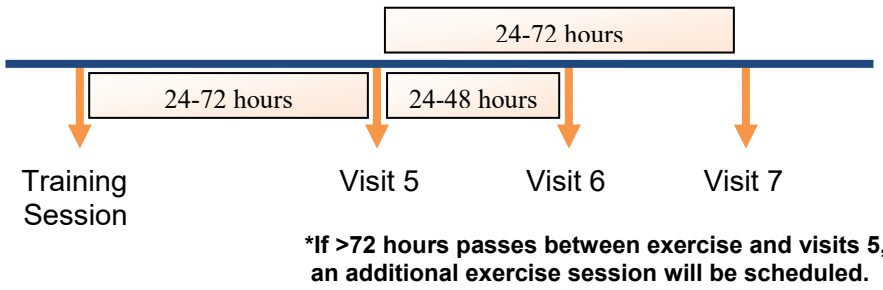
24h before the visit. The abdominal fat biopsy will be performed as described above. Afterwards you may take your diabetes medication if needed.

Seventh Visit at the Joslin Diabetes Center
The final Joslin visit will last about 3 hours, including preparation time. The visit is similar in setup as the First Joslin visit. You will need to fast (no food or drink except water) for 8 hours before this visit and you should not take medications the morning of the visit. First we will measure the basic metabolic rate, as done in the first visit, followed by the DXA Analysis. Next, a study doctor or nurse will place an IV catheter into one of your veins. The IV catheter will be for taking blood samples to look at levels of blood sugar and hormones. First, fasting blood will be drawn to measure blood sugar, insulin and the inflammation markers (TNF-α, and IL-6), lipids (fats in the blood), and other hormones that are made by fat tissue. You may now take your diabetes medication if needed.

Oral Glucose Tolerance Test (OGTT).
Next, the study doctors will perform a glucose tolerance test (as described above, in visit 2) that will measure how your body responds to sugar.

Post OGTT Study Procedure
After this test is complete, the IV catheters will be taken out and we make sure your sugar levels have stabilized.

Timing of the Visits:
Given the importance of obtaining samples and data after the training intervention in a structured manner, we will schedule the Visits as follows:



***If >72 hours passes between exercise and visits 5, 6, & 7 an additional exercise session will be scheduled.**

For the **MIT Exercise Training Program**:
Visit 5 will occur between 24-72h after the last training session, which can occur at Joslin, or at home.
Visit 6 will occur between 24-48h after the last exercise session. Visit 5 may be counted as the last exercise session.
Visit 7 will occur between 24h-72h after the last exercise session, which may be Visit 5.
If there are scheduling conflicts and Visits will need to be delayed, additional training sessions will be scheduled at Joslin, or at home, to keep a minimum of 3 sessions per week. In cases where it is very difficult to complete the visits within the time frames mentioned, Visits 5, 6, and 7 may be done out of order.

For the **HIT Exercise Training Program**:
Visit 5 will occur between 24-72h after the last training session, which is held at Joslin.
Visit 6 will occur between 24-48h after the last exercise session. Visit 5 may be counted as the last exercise session.
Visit 7 will occur between 24h-72h after the last exercise session, which may be Visit 5.
If there are scheduling conflicts and Visits will need to be delayed, additional training sessions will be scheduled at Joslin, to keep a minimum of 2 sessions per week.

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The duration of the exercise training period may be extended as needed to avoid **'**detraining**'** periods between visits, with the intent to finish all **V**isits before the end of week 12.

Important Information about Study Procedures

You should understand that any procedure(s) and/or test(s) conducted as a part of this study are done solely for the purposes of research and any information which results from this study is not to be interpreted for any other reason whatsoever. Further, the researchers in this study will be looking at and interpreting specific results for a very limited purpose and many potential medical findings and/or abnormalities could go unnoticed and/or undetected. If for any reason, a researcher has reason to believe that an abnormality may exist, you will be advised to seek independent medical attention. However, please understand that in no way are the study researchers and/or the Joslin Diabetes Center responsible for, or required to diagnose you for any potential medical condition.

Risks, Potential Risks and/or Discomforts

Participating in research studies often involves some risks, possible risks and/or discomforts.

Blood Draws and IV catheters
The tests done to measure lactate and to test your blood sugar levels before exercise will be done with a finger stick using a lancet. This may cause some discomfort.

When blood is drawn for the laboratory tests and when the IV catheter is inserted, you may feel a sharp stinging sensation from the needle stick. Occasionally, a black and blue mark or small blood clot (phlebitis) may develop at the puncture site. You may have a bruise (a black and blue mark) or pain where we take the blood samples or where the IV catheter is placed. There is also a small risk of infection, lightheadedness, and/or fainting. These complications usually resolve spontaneously or with local heat application.

The total amount of blood drawn during the entire study is about 30 tablespoons. By comparison, the Red Cross allows a healthy adult to safely donate 1 pint (approximately 32 tablespoons) of blood every two months. Since this study occurs across a ten-week period, you should not donate blood 3 weeks before or after participation in this study.

Risks of Use of Glucose during Oral Glucose Tolerance Test
The major risk to you of glucose (sugar drink) is hyperglycemia or an elevated blood sugar. A symptom of hyperglycemia is that you may experience thirst. Your body should be able to rapidly clear the sugar you are given in this study.

Risk of Fat Tissue Biopsy
The major risk of the fat tissue biopsy includes discomfort from the injection of the biopsy needle, which will be minimized by using lidocaine. There is a risk of small bleeding, which could lead to a bruise. There is also a small risk of infection, lightheadedness, and/or fainting. These complications usually resolve spontaneously or with local heat application. There is a risk of localized soreness and discomfort of the biopsy area following the procedure. Since a needle insertion into the skin will be used, you may develop a small scar, although every effort will be made to minimize this.

Risks VO_2 Peak Testing:
Cardiovascular Fitness Test: It is possible that this test could cause heart abnormalities (such as irregularities of the heartbeat), lack of oxygen to the heart, dizziness, or weakness. Every effort will be made to minimize these risks. You will be evaluated for evidence of heart disease with a complete history and examination with

Participant's Initials: _____

the study physician and ECG prior to the first exercise test. If any abnormalities are detected that would put you at risk during the exercise test, you will not be allowed to perform this test or participate in the study. During this test, if you experience 1) any uncomfortable symptoms, 2) abnormalities on the ECG monitor suggesting that a heart abnormality is occurring, or 3) there are significant changes in your blood pressure, the test will be stopped immediately and the information will be sent to your physician. The exercise test will be performed with standardized methods used to measure cardiovascular fitness in patients with and without diabetes and to detect abnormalities of the coronary arteries. Tests will be monitored by certified individuals. This exercise test may cause muscle soreness for 2-3 days. The risks of carefully monitored exercise tests are very low, but do rarely include non-fatal complications requiring immediate medical treatment (in less than 1 out of 10,000 tests), abnormal heartbeats requiring immediate treatment (rare, less than 1 out of 30,000 tests), or death (in less than 1 out of 150,000 tests). You may also experience some chest pain and muscle soreness during or after completion of the test. Due to the fact that a mask is being worn during the exercise test, you may experience claustrophobia.

Exercise Program
There are risks associated with the exercise intervention. There is a remote possibility of adverse events including abnormal blood pressure, fainting, dizziness, arrhythmia, and in very rare instances heart attack or stroke. There also exists the risk of bodily injury including injuries to muscles, ligaments, tendons, and joints, as well as the risk of falling. To minimize the risk of an adverse event, all participants will be pre-screened by the study doctor prior to participation and cleared for exercise before they begin the intervention. Further, an assessment of physical fitness will be performed upon study enrollment, and the exercise intervention will be tailored to each participant's fitness level. You will exercise according to an exercise intensity based on a percentage (70-75%) of your maximum heart rate during the VO_2peak exercise test, that has proven to be safe in previous studies. In case of an emergency, an emergency medical team will be available on-site at the Joslin Diabetes Center.

Risks of DXA Exam
The DXA exam uses a small amount of X-ray radiation, so there is a very slight risk of radiation exposure. The radiation exposure is comparable to what you would get if you were in the sunshine for 3 hours or if you took a flight from California to New York.

In addition to the risks, possible risks, and/or discomforts listed above, there may be risks/discomforts involved in this study that are not known at this time.

New Information and Questions

If any new information about the study including the study procedures becomes known that could affect you or might change your decision to participate in this research study, the study investigator will contact you.

If you have any questions at any time about this study, you may contact the study coordinator Roeland Middelbeek, MD at 617-309-1953/617-309-2573 or the study principal investigator Laurie J. Goodyear, Ph.D., at 617-309-2573

Alternative Procedures/Treatments

Since this study does not provide treatment, the only alternative is not to participate in the study.

Information for Women of Childbearing Potential

If you are a woman who is breast feeding or pregnant you will not be able to participate in this study. If you have not been surgically sterilized, or have not undergone menopause at least a year ago, you must use something to

Participant's Initials: _____

prevent pregnancy, such as systemic hormones (birth control pills, implant), intrauterine device (IUD), a barrier method (diaphragm with intravaginal spermicide, cervical cap, male or female condom) or abstinence. If you suspect that you have become pregnant at any time or do not use one of the contraceptive methods recommended by the investigator, you must notify the study staff immediately. If you become pregnant, you will not be allowed to continue your participation in this research study. The study staff will follow the progress of your pregnancy and birth of your child. To confirm that you are not pregnant prior to participating in the study, a urine pregnancy test will be performed at Visit 1. Your test result must be negative in order to participate in the study.

Removal from Study

Your participation in this research study may be discontinued before you complete the study if circumstances arise which make this necessary. Your participation may be discontinued for any of the following reasons:

- Failure to follow the study protocol
- Change in your medical condition
- Discontinuation of the study for any reason by the sponsor, investigator, Joslin Diabetes Center, or government agencies
- Other reasons, including new information available to the investigator or harmful unforeseen reactions experienced by research participants in this study

If you are discontinued from the study for any reason, this will have no effect on your current or future relationship with the Joslin Diabetes Center. You will not be penalized or lose any other benefits to which you are otherwise entitled.

Adverse Events or Injuries

If an adverse event or study related injury occurs as a direct result of taking part in this study, you should immediately contact the study coordinator Roeland Middelbeek, MD at 617-309-2573/617-309-1953, or the study principal investigator, Laurie Goodyear, PhD at 617-309-2573. After hours, the Joslin Diabetes Center's on call physician can be reached via 617-309-2400.

In the event of an adverse event or study related injury, you or your insurance company may be responsible for some or all of your medical costs for any necessary medical treatment. It is not the policy of the Joslin Diabetes Center to provide free medical treatment or financial compensation for such things as lost wages, disability, and/or discomfort as a result of an adverse event or study related injury.

Anticipated Benefits

It has been shown that exercise improves overall health, which may be considered a benefit, but we cannot guarantee this. However, information from this study about the effects of exercise on changes in fat tissue could contribute to better clinical treatment for patients with type 2 diabetes or pre-diabetes.

Remuneration/Reimbursement

Parking will be provided to you on the days you visit the Joslin for the study (exercise visits included).

You will be paid for the time and effort you give to participate in this study. Compensation will be as follows:

- If you complete Joslin Visit 1, you will be compensated $100.

Participant's Initials: _____

- If you complete Joslin Visit 2, you will be compensated $80 (and another $80 per repeat visit).
- Starting at Joslin Visit 3, you will be compensated by $20 for each week of the exercise intervention you complete by either exercising at Joslin or logging your activity in the online activity tracker account.
- If you complete Joslin Visit 3B (for subjects with type 2 diabetes), you will be compensated $50
- If you complete the Joslin Final Visit, you will be compensated $80.
- Additionally, if you complete the study and have participated in at least 90% of the exercise sessions during the 10 weeks, you will be compensated an additional $120.

The total compensation for this study will be a maximum of $580, $630 if you are in the group with type 2 diabetes, or $740 if additional adipose tissue biopsies were performed. Please note that the maximum compensation depends on full completion of the scheduled Visits and at least 90% attendance of the exercise session during the 10 weeks.

You will only be paid after the end of study and only if you return the activity tracker. If you do not return the activity tracker, you will not receive the study compensation. You will receive a check in the mail 4-6 weeks after study competition.

Besides compensation with money, you will also receive the opportunity to exercise for free at the Joslin facilities. You will also receive individualized exercise training by an exercise physiologist.

Since this study involves complex procedures and equipment, there may be unforeseen findings, which could make you ineligible to continue with the study, in which case you will be compensated as follows:

- If it is determined that you are not eligible for the study after completing Joslin Visit 1, you will be compensated $20.
- If you are not able to continue with the study based on the sugar drink test during Joslin Visit 2, you will be compensated $20.

If this study should result in the development of any marketable product, it is not the policy of the Joslin Diabetes Center to share any profits with participants in the research study.

Responsibility for Costs

All study related tests and procedures, including the exercise program, will be provided to you at no cost. You or your insurance company will not be billed for the costs of study related procedures, tests, and/or medications.

You and/or your insurance company will still be responsible for the costs of your routine and usual medical and diabetes care (for example, annual doctor visits, medications), including any additional costs related to injury occurred during this study.

Right to Withhold or Withdraw Consent, or Refuse Procedures

Your consent to participate in this research study is completely voluntary. You do not have to give your consent, but you will not be allowed to participate in this research study without providing such consent.

At any time you may withdraw this consent and/or refuse a procedure.

If you withdraw your consent or refuse a procedure, you will not be allowed to continue your participation in this research study.

Participant's Initials: _____

To formally withdraw your consent to participate in this research study, you must provide a written and dated notice of this withdrawal to the study's investigator Laurie J. Goodyear, Ph.D., Joslin Diabetes Center, One Joslin Place, Boston, MA 02215.

Whether or not you provide your consent to participate in this research study, withdraw your consent, or refuse a procedure will have no effect on your current or future medical care at the Joslin Diabetes Center or your current or future relationship with the Joslin Diabetes Center. You will not be penalized or lose any other benefits to which you are otherwise entitled.

A description of this clinical trial will be available on www.ClinicalTrials.gov as required by U.S. law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

Privacy & Confidentiality – HIPAA Authorization

A federal regulation, the federal medical Privacy Rule, has taken effect as required by the Health Insurance Portability and Accountability Act (HIPAA). Under the Privacy Rule, you must provide written authorization for the use and/or disclosure of your medical information in connection with research involving your treatment or medical records.

This section gives more specific information about the privacy and confidentiality of your medical information. It explains what medical information will be collected during this research study and who may use, disclose or receive your medical information. It also describes how you can revoke this authorization after you sign this document and your right to inspect your medical information.

We will only collect medical information that is needed for this research study. Your medical information will only be used and/or disclosed as explained in this document or as permitted by law.

The results of this research study may be published in scientific journals and/or presented at medical meetings. If the results of this study are published and/or presented, your identity will be kept confidential.

In addition to this document, you will receive the Joslin Diabetes Center's Notice of Privacy Practices, which provides more information on how the Joslin Diabetes Center can use and/or disclose your medical information. If you have not received the Joslin Diabetes Center's Notice of Privacy Practices, please ask the study investigator or a member of the study staff.

Medical Information Involved in this Study

This study may involve the use and/or disclosure of medical information already in your medical record here at Joslin and/or in another health care provider's records. The information that will be used will be limited to information concerning:

- Duration of diabetes, HbA1c, BMI, urine albumin, creatinine, any existing kidney, lung, and heart conditions, neurological conditions, retinopathy, nephropathy, peripheral and autonomic neuropathy

This medical information will be used and/or disclosed only for the purpose of this research study.

Additionally, this research study may generate new medical information that will be placed in your research record and kept at Joslin Diabetes Center. The nature of the medical information resulting from your participation in this research study that will be placed in your research record includes:

Participant's Initials: _____

- HbA1c, lipid profile, insulin sensitivity measures calculated from laboratory tests, testing for gene changes, other laboratory results, VO_2 peak results

This medical information will be used and/or disclosed only for the purpose of this research study.

Access to Medical Information Involved in this Study

In addition to the study investigators listed on the first page of this document and their study staff, the following individuals may have access to your medical information involved in this study:

- Authorized representatives of the Joslin Diabetes Center Audit and Compliance Office;
- Authorized representatives of the Joslin Diabetes Center Committee on Human Studies;
- The sponsor of this study, or its agents, such as data repositories or contract research organizations;
- Governmental entities that have the right to see and/or review research and/or your medical information, such as the Office of Human Research Protections and the Food and Drug Administration;
- Hospital and other accrediting agencies;
- Clinical staff not involved in this study who may become involved in your care, if the medical information is potentially relevant to treatment;
- Your health care insurer or payer, if necessary, in order to secure their payment for any covered treatment not paid for by this study;

All reasonable efforts will be used to protect the privacy and confidentiality of your medical information. However there is a risk of a breach of confidentiality that cannot be totally eliminated. To minimize this risk, study records will be kept in restricted areas at the Joslin Diabetes Center and computer access will be restricted by a password known only to authorized members of the staff at the Joslin Diabetes Center. Information that could identify you, such as your name, will be maintained in a file separated from all study information. In spite of these efforts to protect the privacy and confidentiality of information about you, there is a risk that sensitive information may be obtained by others or discovered or inferred by members of your family. For example, a court of law may order Joslin to release confidential information about you.

Additionally, all reasonable efforts will be used to protect the privacy and confidentiality of your medical information when the Joslin Diabetes Center is authorized to disclose such information to others. However, if your medical information is disclosed to a party not required by law to keep it confidential, then that information may no longer be protected, and may subsequently be used and/or disclosed without your permission.

Right to Withhold or Withdraw Authorization

Your authorization to use and/or disclose your medical information for the purpose of this research study is completely voluntary. You do not have to give your authorization, but you will not be allowed to participate in this research study without providing such authorization. At any time you may withdraw this authorization, but you will not be allowed to continue your participation in this research study.
If you withdraw your authorization, no new medical information about you will be obtained. However, medical information obtained for, or resulting from, your participation in this research study prior to the date you formally withdrew your authorization may continue to be used and/or disclosed for the purpose of this research study.

To formally withdraw your authorization to use and/or disclose your medical information for the purpose of this research study, you must provide a written and dated notice of this withdrawal to the study's Principal Investigator, Laurie J. Goodyear at the Joslin Diabetes Center, One Joslin Place, Boston, MA 02215.

Whether or not you provide or withdraw your authorization for the use and/or disclosure of your medical information for the purpose of this research study will have no effect on your current or future medical care at the Joslin Diabetes Center or your current or future relationship with the Joslin Diabetes Center. Additionally, whether or not you provide or withdraw your authorization will have no effect on your current or future relationship with a healthcare insurance provider.

Participant's Initials: _____

Continuation of Authorization

Your authorization to use and/or disclose your medical information will continue until you withdraw your authorization. Your medical information may continue to be used and/or disclosed for this research study for an indefinite period of time. This is because information and data that is collected for this study will continue to be analyzed for many years and it is not possible to determine when such analysis will be complete.

Access to Medical Information

Except for certain legal limitations, you are permitted access to any medical information obtained for, or resulting from, your participation in this research study. However, you may access this information only after the study is completed.

Participant's Initials: _____

Joslin Diabetes Center, Informed Consent & Authorization (June 2014)

VOLUNTARY CONSENT & AUTHORIZATION

I understand that no one has contacted my primary care physician or any other doctor from whom I may be receiving care regarding my involvement in this research study. I understand that I should consult with any such doctor, and have been encouraged to do such, prior to participating in this study to discuss whether there is any reason he/she is aware of why I should not participate in this study.

I have been informed of and understand the purpose of the research study entitled " Exercise Regulation of Human Adipose Tissue" and the study's procedures. I have been informed of and understand the foreseeable risks, potential risks, discomforts, and benefits associated with this study. I have been advised of and understand that unforeseen complications may occur. I understand that I may or may not be entitled to free medical care or compensation in the event that I am injured as a result of my participation in this study. I understand that if this research study should result in the development of any marketable product, it is not expected that any profits would be shared with me.

I have been informed of and understand that my medical information may be used and/or disclosed for the purpose of this research study. I understand that the results of the study may be shared with other investigators in an anonymized way, where no identifiable patient information will be provided. I understand that the study investigators, study staff, and the Joslin Diabetes Center will make all reasonable efforts to protect my privacy and confidentiality. I have been advised of and understand that there is a risk that my medical information may be obtained by others. I have been advised of and understand that if others obtain my medical information, my medical information may no longer be protected, and may be subsequently used and/or disclosed without my permission. I have been informed of and understand that this study may be published or otherwise shared for scientific purposes. I understand that my name will not be published and that every reasonable effort will be made to protect my confidentiality.

I have been informed of and understand that my participation in this study is completely voluntary. I may refuse to consent to my participation in this study. Once enrolled in this study, I may withdraw my consent or refuse a procedure at any time. I may refuse to authorize the use and/or disclosure of my medical information for the purpose of this study. Once enrolled in this study, I may withdraw my authorization at any time. I have been informed of and understand that I will not be allowed to participate in this study, or continue my participation in this study, without both my consent and authorization.

I have read this document and been provided with the opportunity to discuss any questions and/or concerns regarding the research study and/or this document with the study investigator or a member of the study staff. I have received the Joslin Diabetes Center's Notice of Privacy Practices.

I have been informed of and understand that I may contact the Joslin Diabetes Center's Committee on Human Studies if I have questions regarding my rights as a research participant in this study. I may contact either:

- **Leigh A. Read**, CHS Program Administrator, at **(617) 309-2543**
- **Robert C. Stanton, M.D.**, CHS Chairperson, at **(617) 309-2477**

I have been informed of and understand that I may contact the Joslin Diabetes Center's Chief Audit and Compliance Office if I have questions regarding my rights associated with the use and/or disclosure of my medical information. I may contact:

- Joslin Diabetes Center's Compliance Officer, at **(617) 309-2400**

Participant's Initials: _____

This is a legal document that may affect my legal rights, my rights to privacy and my medical conditions and information. I understand that I have had the opportunity to consult with legal counsel, and my own physician about this study before signing this form.

I, _____ hereby consent to participate in this study and authorize the use and/or disclosure of my medical information for this research study, as described in this document.

_____ _____
Signature of Participant or Participant's Representative *Date*

_____ _____
Participant or Participant's Representative (Print Name) *Relationship to Participant*

PLEASE NOTE

I do not have to provide my authorization for the use and/or disclosure of my medical information for this research study, as described in this document. If I do not want to provide my authorization, I must check the box below and initial this statement. If I do not provide my authorization, I may not be able to participate in this study.

☐ I **do not** authorize the use and/or disclosure of my medical information for this research study, as described in this document. _____ Participant's Initials

Participant's Initials: _____

Joslin Diabetes Center, Informed Consent & Authorization (June 2014)

VERIFICATION OF EXPLANATION

I hereby certify that I have explained to the above-named participant the purpose of the study entitled "Exercise Regulation of Human Adipose Tissue", the nature of the study procedures, and such foreseeable risks, potential risks, discomforts, and benefits that may result from their participation in this study. This explanation was made in appropriate language. I have advised the above-named participant to contact their primary care doctor regarding his/her participation in this study, if such contact has not been previously made. I have asked the above-named participant if they have any questions and/or concerns regarding this research study or any of the study's procedures, and I have answered his/her questions to the best of my ability.

I hereby certify that I have explained to the above-named participant the nature and purpose of the use and/or disclosure of his/her medical information, including the possibility that his/her medical information may be obtained by others. This explanation was made in appropriate language. I have asked the above-named participant if they have any questions and/or concerns regarding the use and/or disclosure of his/her medical information for the purpose of this research study, and I have answered his/her questions to the best of my ability.

I hereby certify that I have informed the above-named participant that his/her participation in this research study is completely voluntary. To the best of my knowledge, the decisions made by the above-named participant regarding his/her consent and authorization are accurate reflections of his/her personal choices. To the best of my knowledge, the above-named participant has not been coerced or induced into his/her participation in this research study.

_____ _____

Signature of Investigator or Investigator's Representative *Date*

_____

Investigator or Investigator's Representative (Print Name)

Participant's Initials: _____