INFORMED CONSENT FORM

STUDY TITLE: ISCHEMIC CONDITIONING CHRONIC STROKE STUDY

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EFFECTIVE

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MCW/FH IRB

Medical College of Wisconsin and Froedtert Hospital
INTRODUCTION TO THE INFORMED CONSENT

Name of Subject: _____

Ischemic Conditioning Chronic Stroke Study

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You are invited to take part in this research. You can decide whether to take part in this project or not. You are free to say yes or no. If there is anything that you do not understand, please ask questions.

Definitions

- **Ischemia** – reduced blood supply to an organ or part of the body
- **Ischemic Conditioning (IC**) – a non-harmful treatment in which short bouts of ischemia provide protection to organs or parts of the body

Purpose

This project is being done to study the effects of ischemic conditioning (IC) on muscle and cardiovascular function after stroke.

Length

You will be in this research project for as long as it takes to complete all testing sessions but no more than 1 year after consent.

Procedures

We will ask you to complete the motor function tests first. Each visit will be separated by at least 1 week.

List of visits:

- Motor function tests
  - Total Number: 4
  - Total Time: 2 hours
- Cardiorespiratory fitness test
  - Total Number: 2
  - Total Time: 2 hours
- Blood draw sessions
  - Total Number: 4
  - Total Time: 2 hours

Procedures that will occur at various visits:

Invasive Procedures

- Blood draw

Non-invasive Procedures

- Strength test in legs, arms, and hands.
- Muscle electrical activity (EMG) and oxygen usage in muscles (NIRS)
- Peak oxygen usage during an exercise test on a recumbent bicycle
- Blood flow and diameter using an ultrasound
- Ischemic Conditioning for 45 minutes
- Clinical tests that measure balance, muscle function, and walking speed
- Cold water immersion test

Risks

This is a brief list of the most commonly seen risks. The ***full consent form*** after this introduction contains a more complete list of potential research risks.

Intervention risks:

- Discomfort in muscles due to muscle contractions
- Adverse response to exercise
- Temporary numbness and tingling in limbs due to ischemic conditioning
- Irritation of the skin due to skin electrodes (EMG, NIRS)
- Fatigue or lightheadedness due to fasting for 8 hours
- Pain, bruising, redness and swelling, and fainting after having blood drawn
- Cold, pain and numbness in hand due to cold water immersion test

Benefits

This project may or may not help you, but we hope the information from this project will help us better understand blood flow and muscle function after a stroke, which will then help us develop better rehabilitation interventions for people who have recently survived a stroke.

My Other Options

You do not have to join this project. You are free to say yes or no. Whether or not you join this project, your usual medical services will not change.

If you have more questions about this project at any time, you can call Dr. Durand at 414-955-5619.

If you have questions about your rights as a participant, want to report any problems or complaints, or offer input, you can call the MCW/Froedtert Hospital Research Subject Advocate at 414-955-8844.

CONSENT TO PARTICIPATE IN RESEARCH

A1. INTRODUCTION – WHY ARE WE ASKING YOU TO PARTICIPATE?

You are being invited to participate in this research because you had a stroke. Because of your condition, you may be eligible for a research study that will examine the effects of a non-invasive intervention, called ischemic conditioning (IC), on your blood flow and muscle function.

A total of about 125 people are expected to participate in this research at the Medical College of Wisconsin and Marquette University.

The Director of the project is Dr. Matthew Durand in the Department of Physical Medicine and Rehabilitation. A research team works with Dr. Durand. You can ask who these people are.

A2. DO I HAVE TO PARTICIPATE?

You can decide whether to take part in this research or not. You are free to say yes or no. If you say no, your regular medical care will not change. Even if you join this project, you do not have to stay in it. You may stop at any time.

A3. WHY IS THIS PROJECT BEING DONE?

IC is a procedure that reduces blood flow to a part of the body for a short time using a cuff, similar to when you have your blood pressure taken. In IC, when the blood flow is restored, the cells in that part of the body are protected when blood supply is stopped in the future, leading to improvement in muscle performance. People who have survived a stroke can have decreased blood flow and muscle strength on the affected side of the body, which causes the limbs of the affected side to be weaker and less sensitive. In this study, we want to see if using IC can increase blood flow to the limbs and improve muscle strength.

B1. WHAT WILL HAPPEN IF I PARTICIPATE?

You will be “randomized” into one of two study groups. One group will receive the intervention, and another group will not. Randomization means that you are put into a group by chance. It is like flipping a coin. You will have an equal chance of being placed in either group. Neither you nor the research doctor can choose what group you will be in.

All study procedures will be performed by trained research staff. If you feel any discomfort or have any questions during any of your testing procedures, please let a member of the research team know right away. You can stop being in the study at any time. With some of the testing procedures you will be able to rest if you get tired and continue to participate.

1. **Ischemic Conditioning (IC):** We want to measure if preventing blood flow to your arm or leg for short bouts will improve your muscle strength and blood flow.

    - We will place a blood pressure cuff around your arm or leg and inflate it to a pressure high enough to stop blood flow.

- The cuff will be inflated for 5 minutes and then deflated for 5 minutes. This will be done 5 times for a total time of 45 minutes per session.

- You may be asked to have IC repeated over the course of 2-3 weeks (up to 10 sessions, every other day). We call this "training". This may be performed at Marquette University, Froedtert Hospital's Adult Translational Research Unit, or your home on your own time. You will be given instructions on how to perform IC if you do it at home.

2. **Muscle function testing**: We want to measure how strong your leg and arm muscles are, as well as assess the activity that is occurring in your muscles while you are exercising.

    - You will be assisted into a therapy chair that contains a device that will be used to measure arm and leg strength.

    - You will be positioned in the chair, and the test leg or arm will be secured in a padded brace. Pelvic straps will be secured across your lap to help maintain your position during the testing.

    - Small electrodes that record muscle activity (EMG) and monitor the oxygen in your limb (NIRS) will be placed on the surface of your skin over the muscles that are used to straighten and flex your limbs.

    - We will measure the strength of the muscles in your arm and leg, and we will assess how well you can control brief contractions. You will be asked to contract your arm and leg muscles for several seconds, multiple times, at low forces or as hard as you can.

    - We will be verbally encouraging you throughout the testing and you will have visual feedback on a monitor in front of you.

    - We will be taking several measurements of blood pressure, heart rate, and respiration rates throughout the testing session.

    - You will also be asked to complete an assessment using small wooden blocks that measures the dexterity and functioning of your upper extremity.

    - We will also have you squeeze a small hand device that measures the strength of your hand grip.

3. **Cardiorespiratory fitness test**: We may ask you to perform a short exercise test on a recumbent bicycle or stepper while we measure the amount of oxygen and carbon dioxide you breathe out. This exercise will be of increasing intensity and you can stop it if you become uncomfortable or tired. You do not have to perform this test if you do not want to.

4. **Blood draw**: We will collect up to 30mL of your blood (about 2 tablespoons) before and after an ischemic conditioning session to analyze the changes in the composition of your blood. This procedure will be performed by a nurse or a medical assistant at Froedtert Hospital's Adult Translational Research Unit. We may also have you perform a cold water

immersion test at the end of the session where you will insert your hand into ice water for 2 minutes.

5. **Measurement of blood flow**: We will measure both blood flow and the diameter of the large artery in your leg or arm using an ultrasound.

    - You will be asked to fast for 8 hours before coming to these sessions.
    - We will have you lay in a bed while we measure the diameter of the large artery in your leg or arm with an ultrasound probe and some gel. We will also take ultrasound pictures of the artery using the ultrasound probe.
    - We will then place a blood pressure cuff around your lower leg or forearm for 5 minutes and inflate it to 225mmHg.
    - After the cuff is released, we will measure the blood flow and diameter of your artery again.
    - We will then repeat these procedures on your other leg or arm.

6. **Clinical assessments:** A physical therapist will have you perform various clinical assessments that measure your balance, walking speed, and motor function. These assessments will be done when you begin our study and should take no more than 30 minutes to complete.

B2. HOW LONG WILL I BE IN THE PROJECT?

You will be in this research project for as long as it takes to complete all the testing sessions but no more than 1 year after consent. Each session will take 2 hours to complete.

B3. CAN I STOP BEING IN THE PROJECT?

You may stop at any time. If you decide to leave the project, please let the research team know.

The research doctor may stop your participation in the project at any time for any reason without your consent. He will tell you if this happens.

C1. WHAT HEALTH RISKS OR PROBLEMS CAN I EXPECT FROM THE PROJECT?

We watch everyone in the project for unexpected problems or side effects. **You need to tell the research doctor or a member of the research team immediately if you experience any problems, side effects, or changes in your health.**

1. You may feel discomfort in your muscles as a result of muscle contractions.

    - The muscle discomfort associated with the muscle contractions should be minimal and brief. If the pain persists, the protocol will be stopped and you will be examined by a licensed physical therapist.

2. There is a small risk of an adverse response to exercise.

    - Although risk of a sudden cardiac event in response to exercise in people who have survived a stroke is relatively rare, we have taken several measures to safeguard the health of our participants. First, all participants will be carefully screened by the PI to determine risk of an adverse response to exercise (e.g. uncontrolled blood pressure, elevated resting vital signs).

    - Second, all experiments will be performed under the supervision of a senior member of the study staff, and vitals will be monitored throughout testing. We will stop testing based on guidelines set by the American Heart Association for people with cardiovascular disease.

    - Finally, our study design limits strain on the cardiovascular system since subjects will be performing non-continuous contractions.

3. Temporary numbness and tingling sensations may occur in the arm or leg while the blood pressure cuff is inflated for 5 minutes. Discomfort may also occur.

    - Any discomfort related to the blood pressure cuff should be minor and brief. You will be repeatedly asked if you are in pain. If it is too uncomfortable to continue, we will stop the protocol.

4. The adhesive used for the skin electrodes for EMG or NIRS can cause minor irritation of the underlying skin.

    - To minimize skin irritation, we will clean and dry your skin before and after removing the electrodes.

5. There is a risk that you may become fatigued or light headed due to the 8-hour fasting period before the study.

    - An 8-hour fast is common when conducting cardiovascular studies such as this. Most likely, you will be arriving in the morning; therefore, fasting for 8 hours during the nighttime hours should not have a substantial effect on your body.

    - You will be provided a snack and something to drink when you complete the study.

6. The risks of taking blood include pain, a bruise at the point where the blood is taken, redness and swelling of the vein, an infection, and fainting.

    - A licensed medical professional will be drawing your blood, and we will only draw 3 standard sized vials of blood at one time. This is about 1/20th the amount someone would give when the donate blood.

7. You may feel temporary cold, pain and numbness in the hand—as well as an increased heart rate, blood pressure, and breathing rate—when performing the cold water immersion test.

    - Any uncomfortable sensations should disappear when the test is over. If you feel too uncomfortable during the cold water immersion test, we will stop the protocol.

Another risk may be loss of confidentiality. Every effort will be made to keep your research records confidential but we cannot guarantee it. Depending on the kind of information being collected, if your research information were accidentally seen, it might be used in a way that could embarrass you or affect your ability to get insurance. If you have questions, you can talk to the project director about whether this could apply to you.

C3. ARE THERE ANY BENEFITS TO TAKING PART IN THE PROJECT?

This project may or may not help you, but we hope the information from this project will help us better understand blood flow and muscle function after stroke. In addition, we may be able to develop better rehabilitation interventions that optimize muscle strength in people who have survived a stroke.

D1. ARE THERE ANY COSTS TO BEING IN THE PROJECT?

There are no costs to you for any of the visits or services you receive in this project. If you have questions regarding costs, please contact Dr. Durand.

D2. WILL I BE PAID FOR PARTICIPATING IN THE PROJECT?

You will be paid $50 for each visit that involves testing. To pay you, we need your social security number. Any payment may be reportable as income on your taxes.

D3. WHAT OTHER HEALTHCARE CHOICES DO I HAVE?

You do not have to join this project. You are free to say yes or no. Whether or not you join this project, your usual medical services will not change

D4. WILL I BE GIVEN NEW INFORMATION ABOUT THE PROJECT?

If we learn any important new information about the intervention that might change your mind about being in the project, we will tell you about it right away. You can then decide if you want to stay in the project.

D5. WHAT HAPPENS IF I AM INJURED BECAUSE I TOOK PART IN THE PROJECT?

Emergency medical treatment for injuries directly related to your participation in this research project will be provided to you. You or your health insurance will be billed for the costs of this emergency treatment. MCW will decide on a case by case basis if they will reimburse you or your insurer for emergency treatment costs. If your research-related injury requires medical care beyond this emergency treatment, you or your insurer will be responsible for the costs of this follow-up care.

At this time, there is no plan for any additional financial payments.

If you believe that you have been injured because of your participation in this project, contact the research doctors right away. Contact information: Dr. Durand, 414-955-5619.

Nothing in this consent form affects any legal rights you may have nor does it release the investigator, the sponsor, the institution, or its agents from liability for negligence.

D6. WHO CAN ANSWER MY QUESTIONS ABOUT THE PROJECT?

- If you have more questions about this project at any time, you can call Dr. Durand at 414-955-5619.
- If you have questions about your rights as a research participant, want to report any problems or complaints, or offer input, you can call the MCW/Froedtert Hospital Research Subject Advocate at 414-955-8844.

E. PERMISSION TO COLLECT, USE AND SHARE HEALTH INFORMATION

E1. What health information will be collected and used for this project?

To be in this research project, the research team needs your permission to access, collect and use some of your health information. If you say no, you cannot be in the project. This information may come from questions we ask, forms we ask you to fill out, or your medical record, as described below. We will only collect and use information needed for the project.

The protected health information (PHI) originates from services you will or have received at one or more of the following locations: the Medical College of Wisconsin (MCW); BloodCenter of Wisconsin (BCW); Children's Hospital of Wisconsin (CHW); any Froedtert Health Affiliate-Froedtert Memorial Lutheran Hospital (FMLH), Inc.; Community Memorial Hospital (CMH) Menomonee Falls, Inc.; St. Joseph's Community Hospital (SJH) West Bend, Inc.; Froedtert & The Medical College of Wisconsin Community Physicians Clinics, Inc. (FMCWCP); the West Bend Surgery Center, LLC; and the Froedtert Surgery Center, LLC.

The health information we will collect and use for this project is:
Self-reported medical history, age, sex, height, weight, and information about your stroke such as date of stroke, location, and type of stroke.

E2. Who will see the health information collected for this project?

The only people allowed to handle your health information are those on the research team at MCW/Froedtert Hospital, those on the Institutional Review Board (IRB) and those who check on the research activities to make sure the hospital's rules are followed.

If the costs of any necessary emergency medical treatment in the event of a research-related injury are billed to your health insurance, your health information may need to be disclosed to the insurer for billing purposes.

The research team may share your information with people who are not part of the research team because they planned, pay for, or work with us on this project. The federal Privacy Rule may no longer protect your health information once it leaves MCW/Froedtert Hospital. For this project, we plan to share information with those doctors, researchers or government representatives working with us on this project at the institutions or companies listed here:

Marquette University

We will not use your personal health information for a different project without your permission or the permission of a hospital research review board (IRB). Once all personal identification is removed from your health information, the information may be used for future research or distributed to another investigator for future research without additional informed consent from you or your legally authorized representative. The information might also be used or released for other purposes without asking you. Results of the project may be presented in public talks or written articles, but no information will be presented that identifies you

E3. What are the risks of sharing this health information?

One risk of taking part in a research project is that more people will handle your personal health information collected for this project. The research team will make every effort to protect the information and keep it confidential, but it is possible that an unauthorized person might see it. Depending on the kind of information being collected, it might be used in a way that could embarrass you or affect your ability to get insurance. If you have questions, you can talk to the research doctor about whether this could apply to you.

E4. How long will you keep the health information for this project?

If you sign this form, we plan to keep your information for 10 years after the research project ends in case we need to check it again for this project.

E5. Can I cancel my permission to share this health information?

If you change your mind later and do not want us to collect or share your health information, you need to send a letter to Dr. Matthew Durand at *8701 Watertown Plank Road, Milwaukee, WI 53226*. The letter must say that you have changed your mind and do not want the researcher to collect and share your health information. At that time, we may decide that you cannot continue to be part of the project. We may still use the information we have already collected.

CONSENT TO PARTICIPATE

By signing my name below, I confirm the following:

- I have read (or had read to me) this entire consent document. All of my questions have been answered to my satisfaction.
- The project's purpose, procedures, risks and possible benefits have been explained to me.
- I agree to let the research team use and share the health information and other information gathered for this project.
- I voluntarily agree to participate in this research project. I agree to follow the procedures as directed. I have been told that I can stop at any time.

IMPORTANT: You will receive a signed and dated copy of this consent form. Please keep it where you can find it easily. It will help you remember what we discussed today.

Subject's Name *please print*	**Subject's Signature**	**Date**