RESEARCH CONSENT FORM

Exercise Training in Cystic Fibrosis: Comparison of Aerobic Exercise Intensity

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- We are asking you to be in a research study.
- Research is done to answer a scientific question. Research studies may or may not help the people who participate.
- Joining this study is completely voluntary. If you say yes, you can quit the study at any time.
- You can still get medical care and other services from the University of Kansas Medical Center even if you are not in the study.
- The research team will explain what happens if you decide to join the study. This conversation is called “informed consent.”
- Informed consent includes a chance to get your questions answered before you make your decision. Please ask as many questions as you need to.
- This consent form explains the study. Take as much time as you need to decide.
- If you decide to be in the study, you will be asked to sign this form.

This research study will take place at the University of Kansas Medical Center (KUMC) with Dr. Burnett as the researcher. About 24 people will be in the study at KUMC.

Why is this study being done?
Shortness-of-breath associated with cystic fibrosis (CF) can contribute to decreased physical activity in CF patients. Decreased physical activity can lead to a reduced fitness level, which is measured as cardiorespiratory fitness (CR-fitness). We are doing the study to determine the effectiveness of a home-based exercise program compared to the standard of care exercise program for people with CF given by your CF doctor.

How long will I be in this study?
The study will last approximately 14 weeks, involve 2 visits to the research clinic, and 24 phone calls (1 per week) with a pulmonary rehabilitation coach (PR-coach) on the research team.

What will I be asked to do?
If you agree, we will ask you to sign this consent form before we do any study procedures.

You will be randomly assigned (like rolling the dice) to one of two groups.

- Tele-Rehab (TR)
- Standard of Care (SOC)

You will have a 1 in 2 chance (50%) of being randomized to the TR or SOC group.

Below is a table that lists all the procedures that will happen at each study visit. After the table, you will find more details about the study procedures.

Assessments	Baseline (Clinic)	12 Week Intervention (Home-weekly)	End of Study (Clinic)
Medical History/ Demographics	X		
MSWT	X		X
Lung Function Test	X		X
Questionnaires	X		X
^{129}Xe MRI	X		X
Receive Exercise Plan, Diary and Fitness Tracker	X		
PR Coach Individual Call		X	
Return Fitness Tracker			X
Approximate visit length (hours)	3	15 minutes	2

The following is a description of each test and procedure listed above:

Medical History and Demographics: We will ask you basic personal questions and gather the information from your medical history from your records here at The University of Kansas Health System.

MSWT: The purpose of the Modified Shuttle Walking Test (MSWT) is to measure your CR-fitness. The MSWT will be consistent with the level of physical activity during your normal day-to-day activities. A study team member will explain and demonstrate the MSWT before you begin the test.

The MSWT consists of 15 levels on a course about 33 feet long. The course is marked by two cones on each end. An audio signal represents the pace and increases to the

next level of speed during the test. The test begins at a slow pace and increases at each new level. Each of the 15 levels lasts 1 minute. The test is over when you can no longer continue or are unable to keep up with the pace of the audio signal twice in a row.

The capacity and strength of the lungs is measured before and during exercise. The research team will also use an electrocardiogram (ECG) to measure the activity of your heart while the test is being performed.

Lung Function Test: You will be asked to perform a breathing test (spirometry). This is a test that measures how well you move air in and out of your lungs. You will be asked to take a deep breath and then blow into a tube as hard and as long as possible. This will be the same test that you have performed during your routine clinical visits.

^{129}Xe MRI: You will be asked to have a MRI at your baseline and end of study visits. During the MRI examination, you will lie on your back on a table, wearing a vest that transmits and receives signals for the MRI, and a small sensor will be applied to your finger to monitor your pulse rate and blood oxygen levels. The table will be slid into the MRI scanner and we will obtain a regular MRI scan of your lungs. After this, you will be instructed to inhale a small dose of hyperpolarized ^{129}Xe through the mouth. After inhaling the gas, you will be asked to inhale additional doses of hyperpolarized ^{129}Xe to acquire different kinds of lung scans. For each ^{129}Xe dose, you will be asked to hold your breath for approximately 16 seconds. The doses will be separated by at least 5 minutes. During each ^{129}Xe dose, your heart rate and your blood oxygen levels will be monitored. After each dose, the table will be slid out of the MRI scanner so that you can talk with the study team. If you feel uncomfortable at any time during the MRI, please let the study team know, and they can remove you from the scanner.

Questionnaires: You will be asked to complete questionnaires for this trial. One questionnaire is a cystic fibrosis questionnaire that assesses quality of life in people with CF. If you are in the TR group, you will complete a questionnaire about your use of the Strava app.

Receive Exercise Plan, Diary, and Fitness Tracker: At your baseline visit, you will receive your exercise plan, exercise diary (TR group only), and a Garmin Vivosmart 4 fitness tracker (TR group only). A study team member will explain your exercise plan to you to make sure you understand it. At the baseline visit, the PR-coach will ask you about your exercise preferences, motivation, and barriers to exercise.

TR Group Only

You will be asked to achieve a target of 180 total minutes/week of aerobic exercise activity for 12 weeks. Your PR-coach will ask you to progressively increase your exercise minutes, starting with at least 60 minutes of weekly exercise during week 1, and progressing up to a total of 180 minutes by week 9.

Weekly Exercise Minutes:

- Weeks 1-2: 60 minutes
- Weeks 3-4: 90 minutes
- Weeks 5-8: 120 minutes
- Weeks 9-12: 180 minutes

You will be instructed to maintain a heart rate (HR) range between 40%-85% of your maximum HR while you exercise. The research team will determine your maximum HR at your baseline visit.

You will be asked to wear the fitness tracker, on your wrist, during your planned exercise sessions. Once you receive your fitness tracker, you will be asked to download the Garmin Connect app on your smart device or home computer. You will be given a specific username and password by the study team to use while you are in the study. This username and password should not be shared with anyone outside of the study team.

Your fitness tracker will be used to collect exercise time and HR data. Your exercise data will then be downloaded to the Garmin Connect app. Your data will be encrypted per manufacturer specifications and you will have the option of erasing all data from the fitness tracker and app at the end of the study.

You will also be asked to turn-in an exercise diary during a weekly meeting with a study team member. The exercise diary will include what type of exercises you completed, and minutes spent performing aerobic exercise training. A study team member will show you how to fill your diary out. After completing the study, you will be asked to return your fitness tracker to the research site.

PR-Coach Calls: You will be asked to attend a weekly call (virtually) with your PR-coach, these calls may include exercise demonstrations, teaching, evaluations, and social interaction with other subjects in the study. The calls will last about 15 minutes.

You will also discuss you exercise diary and download your exercise data from your fitness tracker. The study team will show you how to download your exercise data to the app and we ask that you download the data at least once a week. Let the study team know as soon as possible if you have any trouble downloading your data.

All TR participants will have access to an app www.Strava.com that will provide a social environment that encourages exercise commitment. Your PR-coach will provide individualized feedback through the Strava app to promote social interaction and encourage motivation. Also, all TR participants will have access to the exercise libraries via the web site www.beamfeelgood.com. The website can be used to find exercise videos specific to CF.

You PR-Coach will also email you weekly with information on weekly exercise activities as well as changes in exercise preferences, motivation, barriers and any side effects you may be experiencing

Optional Maintenance Phase: At your end of study visit, the study team will ask you if they can continue to collect data from your account in the Strava app. We would like to collect this information from the app:

- How many workouts you post
- How many times you post a message within the app
- How many comments/replies you receive to your post
- How many "likes" you receive to your post

We will continue to collect this data up until 4 weeks after the last participant completes the study. You will not be required to come into the clinic for further testing if you decide to join the optional phase. You will still have access to the Strava app even if you do not participate in the optional maintenance phase.

At the end of this consent form, you can decide whether or not to participate in the optional maintenance phase, and allow the study team to access your data in the Strava app.

SOC Group Only
If you are randomized to the SOC group, the study team will give you information on exercise resources, such as websites, and discuss the health benefits of exercise. You will be asked to keep your exercise consistent throughout the 12 weeks of the intervention. You will be asked to do all of the same study procedures as the TR group, but will not receive the exercise plan, diary, fitness tracker, or have free access to the exercise apps. You will also not have the weekly PR-coach calls.

What are the risks of being in the study?
The tests and exercise intervention during this study may cause side effects or other problems. You may experience none, some or all of the effects listed below. Please tell the study team about anything that may bother you or about any changes in your health during the study.

MSWT Risks:
The MSWT is considered a safe test, and complications are rare. But, as with any medical procedure, there is a risk of complications, including:

- Low blood pressure. Blood pressure may drop during or immediately after exercise, possibly causing you to feel dizzy or faint. The problem should go away after you stop exercising.

- Abnormal heart rhythms (arrhythmias). Arrhythmias brought on by an exercise test usually go away soon after you stop exercising.

- Heart attack (myocardial infarction). Although exceedingly rare, it's possible that an exercise test could cause a heart attack.

The study team will monitor you throughout your MSWT for any issues that may arise.

Lung Function Test Risks:
You might experience the following during these tests: dizziness, lightheadedness, shortness of breath, or anxiety.

^{129}Xe Risks:
Hyperpolarized ^{129}Xe gas is considered investigational because it has not been approved by the U.S. Food and Drug Administration (FDA). Investigational products are still being studied to find out what a safe dose is, what the side effects are, and whether or not the gas is effective in the disease being studied.

Inhalation of the gas may cause you to feel the following effects:
- slight numbness in the legs
- nausea
- light-headedness
- smelling of flowers
- a feeling of well-being or elation
- mild tingling in the fingertips

The gas may also cause a brief drop in your oxygen level, usually lasting less than 2 minutes. If your oxygen saturation drops, you may be given supplemental oxygen temporarily.

MRI Risks:
The risks related to the MRI are mild. Some people feel like they are confined during the MRI procedures. If this happens to you, you can tell the MRI technician and the procedure will be interrupted. Since strong magnets may move and affect metallic objects in one's body, people with cardiac pacemakers are not allowed to enter the MRI area. People with other metallic objects in the body such as certain types of artificial joints, internal ear implants (cochlea), clips in the brain, some artificial heart valves, and metallic materials in other parts of the body will not be able to have MRI scans. You will be asked about these conditions before the study and if any of this applies to you, will not be enrolled in this study. Ask the investigator if you have any doubts regarding any metallic object in your body. In addition to that, all magnetic objects, (for example: watches, coins, jewelry, credit cards) must be removed before entering the MRI room.

Questionnaire Risks:
There is a risk of feeling uncomfortable while answering some of the questions in the questionnaire. If you feel uncomfortable at any time you may skip a question or stop the questionnaire all together.

Exercise Risks:
You will be asked to participate in routine exercise that is similar to walking at a brisk pace, continuous jogging, or even running. As with any exercise, there is the chance you may experience shortness of breath, lightheadedness, a tight feeling in your chest, chest pain, rapid heartbeats, muscle discomfort, leg cramps, or fatigue.

Are there benefits to being in this study?
Researchers don't know if you will benefit from this study. If either exercise program is effective, you may experience improved fitness and quality of life. Researchers hope that the information from this research study may be useful in the treatment of patients with CF.

Will I cost anything to be in this study?
You will not be charged for being in the study.

The study will pay for all study-related services that are performed during this study. These services include the study visits, and study related tests and procedures such as the MSWT, lung function test, ^{129}Xe MRI, and all questionnaires as listed in this consent form. These services also include the fitness tracker and app and website access you will receive if you are in the TR group.

Any other medical visits and procedures you have outside of the study due to other standard of care treatments or other health issues are billable to you or your insurance through normal hospital billing practices. Standard of care means necessary for the care of a medical issue as determined by your doctor and not necessary for this study.

Your insurance may not cover some or all of the standard care services if you are part of a research study. You may want to talk to your insurance company and review your specific benefits and coverage before deciding to participate. You will be responsible for normal co-pays, deductibles and non-covered services that are not the responsibility of the study. Some procedures require Pre-Certification from your insurance company. Pre-Certification is not a guarantee of payment.

You can still be in the study even if your insurance denies coverage for your standard of care treatment or if you are uninsured. The hospital has a financial assistance program which it makes available to all patients who qualify. If your insurance denies coverage and you do not qualify for the financial assistance, you will be charged for all bills that are not the responsibility of the study. The study staff will be able to provide more information to you.

Will I get paid to participate in the study?
You will receive $90 for each completed in clinic study visit. If you complete both clinic visits, you may receive up to $180. If you leave the study early, you will be paid only for the visits you completed.

You will be given a ClinCard, which works like a debit card. After a study visit, payment will be added onto your card by computer. The money will be available within 1 business day. You can use the ClinCard at an ATM or at a store. No one at KUMC will know where you spent the money. You will be given one card during the study. If your card is lost or stolen, please call (866) 952-3795.

The KUMC Research Institute will be given your name, address, social security number, and the title of this study to allow them to set you up in the ClinCard system. Study payments are taxable income. A Form 1099 will be sent to you and the Internal Revenue Service if your payments are $600 or more in a calendar year. If you do not provide a valid social security number or tax identification number, 30% of your payments will be set aside by KUMC and sent to the IRS for withholding on your behalf.

Your personal information will be kept on a secure computer. It will be removed from the computer after the study is over and the money on the card has been used. Your information will not be shared with other businesses. It will be kept completely confidential.

What happens if I get hurt or sick during the study?
If you have a serious side effect or other problem during this study, you should immediately contact Dr. Burnett at 913-588-9499. If it is after 5:00 p.m., a holiday or a weekend, you should call 913-588-5000 and ask for the Pulmonary attending physician on call. Please tell the physician that you are in this research study. A member of the research team will decide what type of treatment, if any, is best for you at that time.

If you have a physical injury as a result of participating in this study, treatment will be provided for you at the usual charge. Treatment may include first aid, emergency care and follow-up care, as needed. Claims will be submitted to your health insurance policy, your government program, or other third party. You will be billed for the costs that are not covered by the insurance. You do not give up any legal rights by signing this form.

What other choices do I have if I don't want to be in the study?
You can choose not to be in the study. Instead of being in this study, you can continue to follow your current exercise program. You can decide to leave the study at any time. Leaving will not affect the treatment or services you get at KUMC.

How will my confidentiality and privacy be protected?
The researchers will keep your identity confidential, as required by law. Absolute confidentiality cannot be guaranteed because persons outside the study team may need to look at your study records. The researchers may publish the results of the study. If they do, they will only discuss group results. Your name will not be used in any

publication or presentation about the study.
Your study information will be labeled with your research ID number. The study team will keep a separate list that matches your name to the research ID number. These steps will lessen the risk that your personal identity and information will be seen by others who shouldn't have it.

If you sign this form, the research team will collect, use and share your private health information as described below. If you decide not to sign this form, you cannot be in the research study.

Study data includes information from your study activities and from your medical record. Your health care providers may release your private health information to Dr. Burnett and the research team. The team may use any and all of your information needed for the study. Your medical records may contain your name, address, phone, date of birth, social security number, or other identifiers. Others at KUMC might need to look at your research records. They include KUMC Research Institute, the Institutional Review Board or other committees and offices that review and monitor research studies.

Your participation in this study and your study information may be put into the University of Kansas Health System electronic medical record and combined with your health information from your clinical care. The health system may use and share this information for other purposes described in the Notice of Privacy Practices.

You may not be able to see your records relating to the study until after the study is over and the results are known. Any research information that is put in your medical record will be kept indefinitely.

The research team will share your study data with people outside KUMC. These groups or agencies may make copies of study data for audit purposes. If your information is disclosed by your health care providers or the research team to others, federal and state confidentiality laws may not protect it. These groups may include:

- Federal agencies that oversee human research (if a study audit is performed)
- Garmin Ltd. or its business partners
- Experts who inspect the study information to see if the study is being done correctly and if it is still safe to continue
- Other groups that help manage or provide services to support the study
- Ethics committees that review the study for other locations

Your permission to use and share your health information will not expire unless you cancel it. To cancel your permission, please write to Dr. Burnett. The mailing address is Dave Burnett, PhD, University of Kansas Medical Center, 3901 Rainbow Boulevard, Kansas City, KS 66160. If you cancel your permission, you will be withdrawn from the study. The researchers will stop collecting any additional information about you. They are permitted to use and share information that was gathered before they received your

cancellation.

The researchers may publish the results of the study. If they do, they will only discuss group results. Your name will not be used in any publication or presentation about the study.

What if I decide to leave the study?
You can choose to cancel your permission for researchers to use your health information. If you want to cancel your permission, please write to Dr. Burnett using the contact information on the first page of this document. If you cancel permission to use your health information, you will be withdrawn from the study. The researchers will stop collecting any additional information about you unless they need information about a side effect of the study intervention. They are permitted to use and share information that was gathered before they received your cancellation.

Will I be told about research results?
You will be told about any study results that directly affect your personal medical care.
At the end of the study, we will send you a letter with a summary of the overall results of the study. Your results will not be put into your medical record.

How will my research information be used in the future?
In the future, researchers at KUMC and at other locations might re-use the information from this study for other research. If that happens, information that could identify you will be removed first. You will not be asked if you agree to the future research that has identifiers removed.

Who can I talk to about the study?
Dr. Burnett or other members of the study team should answer all your questions before you sign this form. They will also tell you if they learn anything new that might affect your decision to stay in the study. You can talk to the researchers if you have any more questions, suggestions, concerns or complaints. If you have questions about your rights as a research subject, or if you want to talk with someone who is not involved in the study, you may contact the KUMC Institutional Review Board at (913) 588-1240 or humansubjects@kumc.edu.

CONSENT

Dr. Burnett or the research team has given you information about this research study. They have explained what will be done and how long it will take. They explained any inconvenience, discomfort or risks that may be experienced during this study.

By signing this form, you say that you freely and voluntarily consent to participate in this research study. You have read the information and had your questions answered.
You will be given a signed copy of the consent form to keep for your records.

_____
Print Participant's Name

_____ _____ _____
Signature of Participant Time Date

_____
Print Name of Person Obtaining Consent

_____ _____
Signature of Person Obtaining Consent Date

OPTIONAL MAINTENANCE PHASE CONSENT

At your end of study visit, the study team will ask you if they can continue to collect data from your account in the Strava app. We would like to collect this information from the app:

- How many workouts you post
- How many times you post a message within the app
- How many comments/replies you receive to your post
- How many "likes" you receive to your post

We will continue to collect this data up until 4 weeks after the last participant completes the study. You will not be required to come into the clinic for further testing if you decide to join the optional phase. You will still have access to the Strava app even if you do not participate in the optional maintenance phase.

I would like to participate in the optional maintenance phase, and allow the study team to access my data in the Strava app:

☐YES ☐NO

_____
Print Participant's Name

_____ _____ _____
Signature of Participant Time Date

_____
Print Name of Person Obtaining Consent

_____ _____
Signature of Person Obtaining Consent Date