**PARTICIPANT INFORMATION SHEET**

**Resistance exercise and artery function**

**Formal study title**: The effects of resistance exercise with and without the Valsalva manoeuvre on central arterial stiffness and cerebral autoregulation in healthy sedentary individuals

**Locality:** Eastern Institute of Technology (EIT) | Te Pūkenga

**Ethics reference:** 2024 EXP 19783

**Lead investigator:** Dr Blake Perry **Contact phone number:** +64 4 979 3492

You are invited to take part in a study on the impact of resistance exercise and breath-holding (the Valsalva manoeuvre) on artery function. This study is a collaboration between Massey University, EIT | Te Pūkenga and the Medical Research Institute of New Zealand (MRINZ). **Whether or not you take part is your choice.** If you don’t want to take part, you don’t have to give a reason, and it won’t affect the care you receive. If you do want to take part now, but change your mind later, you can pull out of the study at any time.

This Participant Information Sheet will help you decide if you’d like to take part. It sets out why we are doing the study, what your participation would involve, what the benefits and risks to you might be, and what would happen after the study ends. We will go through this information with you and answer any questions you may have. You do not have to decide today whether or not you will participate in this study. Before you decide, you may want to talk about the study with other people, such as family, whānau, friends, or healthcare providers. Feel free to do this.

If you agree to take part in this study, you will be asked to sign the Consent Form on the last page of this document. You will be given a copy of both the Participant Information Sheet and the Consent Form to keep.

This document is 17 pages long, including the Consent Form. Please make sure you have read and understood all the pages.

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| **Voluntary Participation and Withdrawal From This Study** |

Your participation in this study is entirely voluntary. If you do not wish to participate, or change your mind after agreeing to participate, then you may withdraw from the study without consequence and at any time. If you do decide to withdraw after agreeing to participate and signing the consent form then we kindly ask that you contact the lead investigator to indicate your withdrawal.

## What is the purpose of the study?

Resistance exercise is a popular form of exercise that produces many benefits such as increased muscle size and strength. Resistance exercise is also recommended as treatment for those with heart disease, type II diabetes mellitus, and stroke. There is some evidence to indicate that resistance exercise may impair the function of arteries in the chest and abdomen (e.g. aorta), and the brain. However, this appears to be confined to high intensity resistance exercise (lifting heavy loads with near maximal effort).

During high intensity resistance exercise it is common for people to hold their breath when straining to lift the heavy loads. This breath-hold is called a Valsalva manoeuvre, and is also performed during coughing, defecation, and childbirth. There is some evidence to indicate that it is the breath-hold during high intensity resistance exercise that may impair artery function. Furthermore, even a single resistance exercise bout with repeated breath-holds may impair artery function. However, research is yet to confirm this possibility.

For exercise of any type to be responsibly prescribed to any individual, the risks and benefits must be understood. This research aims to identify potential risks of resistance exercise in healthy individuals that then may preclude at-risk populations from this exercise type.

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| **Who can take part in the study?** |

We have asked you to participate in this study because you are a healthy individual that is aged between 18 and 35, and you:

* Do not partake in regular resistance exercise such as powerlifting, weightlifting, bodybuilding or CrossFit – defined as not having completed more than 1 resistance exercise session a week for 3 or more consecutive weeks, within the last 6 months.
* Perform less than 1 dedicated exercise session (e.g. rowing exercise or running) per week for 6 or more months prior to the experiment. This does not include regular physical activity e.g. activities such as walking, gardening, low intensity cycling (commuting) and general household chores.

Before taking part in the study, we need to make sure that it is safe and appropriate for you to take part by checking your meet all the requirements. You will not be able to take part if you:

* Have any known heart (e.g. congestive heart failure) or vascular (e.g. atherosclerosis or peripheral vascular disease) conditions
* Have had a stroke or mini-stroke (transient ischemic attack - TIA)
* Have recently fainted (within the last 6 months) or have low blood pressure when standing
* Have a lung (pulmonary) disease (e.g. chronic obstructive pulmonary disease (COPD))
* Have a metabolic disease (e.g. diabetes mellitus)
* Have a previous or current bone, muscle, or soft tissue injury that may stop you from completing resistance exercise (e.g. fractures, or ligament, tendon, or muscle sprains/tears/inflammation)
* Have been told by your doctor that you should not exercise for any reason
* Are pregnant
* Currently smoke or vape, or have done so in the last 6 months
* Are taking any medications to control heart rate or blood pressure
* Have sensitive/irritable skin or a skin disease (infectious or non-infectious)
* Have any other reason to consider that you are not in good health and should not exercise

Additionally, you will not be included in the study if the research team are unable to obtain an adequate blood velocity trace from an artery (middle cerebral artery) in your brain using an ultrasound machine. The ability to obtain an adequate trace from this artery can be challenging in some individuals due to variations in anatomy. If you’re unsure about any of these requirements please ask a member of the study team.

## What will my participation in the study involve?

We are looking to recruit 15 healthy volunteers who do not regularly perform resistance exercise to investigate the effects of resistance exercise and breath-holds (Valsalva manoeuvres) on the function of central (arteries of chest, abdomen, and neck) and brain arteries. This study involves 4 (four) in-person visits to the Institute of Sport and Health Laboratory, EIT, located at the Mitre 10 Park, 42 Percival Road, Hastings. The total time commitment for this study is ~7 hours and 10 minutes. Each visit will be separated by at least 5 days and the details of each visit are described in detail below. Your involvement in the study will be ~ 5 weeks if you are male, and between 5 -12 weeks for females, for reasons outlined below.

For female participants visits 2, 3 and 4 will be repeated during the same phase of the menstrual cycle, as there is evidence to indicate the levels of some hormones in the blood (e.g. oestrogen) can impact arterial function. Self-reported menstrual cycle information will be requested by a female member of the study team during the scheduling of visits 2,3 and 4. Visits 2, 3 and 4 can be completed during any menstrual cycle phase. However, the timing will be kept consistent across visits 2, 3 and 4, such that all visits will occur in the same menstrual cycle phase e.g. visits 2, 3 and 4 all occur during menstruation (approximately days 0-5 of menstrual cycle) in consecutive menstrual cycles. If you are using oral contraception or use an intra-uterine device, if applicable we will ask for self-reported phase of use (e.g. placebo-pill phase) such that the visits can also be scheduled at the same phase as mentioned for those not using contraception.

## Study protocol overview

A person in a chair with a diagram of a person

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Figure 1. Experimental protocol overview for visits 2, 3 and 4. Image created with BioRender.com.

## Visit 1 - Familiarisation (~1 hour)

The familiarisation session will occur first.During this session the research team will:

* Call you prior to this visit to check your eligibility (~10 minutes)
* Explain the study to you in detail and answer any questions you may have
* Ask you to sign the consent form to take part in the study
* Record personal information (like your date of birth, sex, and current exercise regimen)
* Ask you questions about your medical history, including what problems you have and what medicines you take
* Determine if you are eligible for the study
* Locate an artery in your brain (middle cerebral artery) using an ultrasound

If you still wish to take part, and you are eligible to do so, we will proceed to collect the following information and complete the following procedures:

* Measure your height and body weight
* Demonstrate the exercises that will used in the study (bicep curl, leg press, leg extension and chest press)
* Ask you to perform the resistance exercises and estimate the maximal load that you could potentially lift once (1-repetition maximum)
* Practice the resistance exercise and breathing requirements for all study visits
* Practice the breath-holds in isolation with real-time feedback

## Visit 2, 3 and 4

Visit 2, 3 and 4 will be completed in a random order. However, for simplicity the visits are ordered to indicate the different requirements. For visits 2, 3 and 4, we will ask you to abstain from strenuous exercise and alcohol for 12 hours, and caffeine for 4 hours, prior to arriving at the laboratory. You will record your diet for 12 hours prior to visit 2, and we will also provide

you with a list of foods to avoid. You will then be asked to repeat this diet for visits 3 and 4. Additionally, for each of these visits we will ask you to provide a urine sample upon arrival to check you are hydrated. The requirements of visits 2, 3 and 4 are:

* Visit 2 - Resistance exercise without breath-hold
* Visit 3 - Resistance exercise with breath-hold
* Visit 4 - Breath-holds only

Central and brain arterial function will be assessed before and after these requirements (see also figure 1 above).

## Study procedures summary

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|  | **Visit 1 - Familiarisation** | **Visit 2 - Resistance exercise only** | **Visit 3 - Resistance exercise with breath-hold** | **Visit 4 – Breath-holds only** |
| **Time Commitment**  **(total ~7 hours 10 minutes)** | ~ 1 hour | ~ 2 hours 10 minutes | ~ 2 hours 10 minutes | ~ 1 hour 50 minutes |
|  | | | | |
| Collect Demographics | X |  |  |  |
| Collect medical history | X |  |  |  |
| Sign a consent form | X |  |  |  |
| Measure height and weight | X |  |  |  |
| Provide a urine sample |  | X | X | X |
| Measure arterial function |  | X | X | X |
| Resting physiological variables (e.g. heart rate). | X | X | X | X |
| Perform resistance exercise | X | X | X |  |
| Perform breath-holds | X |  | X | X |

## What does the resistance exercise involve?

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|  | **Resistance exercise** |
| **What exercises do I need to do?** | *Visit 1 - Familiarisation session.*  Bicep curl, leg press, leg extension and chest press exercises utilised in this study will be first demonstrated to you by the lead researcher. The exercise machines will be adjusted to your height and limb length.  The load will gradually be increased until you are able to perform less than 10 repetitions of the load using a tempo of 4s per repetition. That is, 2s to complete the lifting phase, and 2s to complete the lowering phase of the exercise. A metronome will be used to assist you. From this data the study team can calculate the maximal load that you could potentially lift once (1-repetition maximum). This process will be repeated for bicep curl, leg press, leg extension and chest press exercises. The load lifted during visits 2 and 3 will be 60% of this estimated 1-repetition maximum. You will then be asked to practice lifting this load using the breathing techniques that will be used in visit 2 and 3, which are outlined below.  *Visit 2 – Resistance exercise without breath-hold.*  During visit 2, you will be asked to complete 3 sets of 10 repetitions of each exercise, lifting 60% of your 1-repetition maximum. As in visit 1, you will be given 2s to complete the lifting phase and 2s to complete the lowering portion of the exercise. Additionally, you will be asked to breathe out during the lifting phase, and breathe in during the lowering phase of each exercise. Each set of exercise will be separated by 3 minutes break.  *Visit 3 – Resistance exercise with breath-hold*.  During visit 3 you will be asked to repeat the process of visit 2. However, during the lifting phase of the last 6 repetitions of each set you will be asked to perform a breath-hold. During each breath-hold you will be asked to generate a mouth pressure of 40 mm Hg. As the lifting phase is 2s, each breath-hold will be approximately 2s in duration. Inhalation will then occur in the lowering phase of the next repetition. |
| **I have never performed resistance exercise before. Is this a problem?** | The lead researcher has >20 years of resistance exercise experience and will demonstrate the correct technique before you partake in any exercise. Feedback about technique will be given when appropriate during any visit and all machines will be correctly tailored to you before any weight is applied to the movement. |
| **When will I need to exercise?** | During visits 1, 2 and 3. |

## What does the breath-hold (Valsalva manoeuvre) involve?

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|  | **Breath-Hold** |
| **What is a breath-hold?** | For the purposes of this study a breath-hold is when you hold your breath but are trying to breath out – think of trying to blow up a large air ballon or trying to breath out with your mouth closed and nose pinched. This type of breath-hold with a strain is called a Valsalva manoeuvre, and is commonly performed when lifting something very heavy, during defecation, coughing, and childbirth. The intensity of the straining in this study will be a mouth pressure of 40 mm Hg, which is measured by trying to breath out into a carboard tube linked to a sensor that measures pressure. Your generated mouth pressure during the breath-hold will be visible to you in real-time. |
| **How long do I need to hold my breath for?** | During exercise (visit 3) you will be asked to hold your breath for 2s during the lifting phase of resistance exercise. When performing the breath-hold in isolation (Visit 4), you will be asked to hold your breath for 3s each time, with instructions delivered to you verbally by the study team. You will be given an opportunity to practice both lengths of breath-hold during the familiarisation session (Visit 1), and clear instructions will be provided each time you are asked to perform a breath-hold. |
| **When will I need to exercise?** | During visits 1, 3 and 4. |

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Figure 2. Visit 4 Breath-hold protocol. Each breath-hold will be at an intensity of 40 mm Hg. Real-time feedback will be provided on a computer screen to enable you to achieve 40 mm Hg of mouth pressure. You will be instructed by the study team when to initiate the breath hold and when to stop. The total number of breath-holds in this visit will be 72.

## What procedures are used in this study?

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| **Urine sample** | |
| **Why do I need a urine test?** | Your urine specific gravity will be measured to indicate how hydrated you are. Your hydration status can impact some of the measures that are critical to the main outcomes of this study, namely arterial function. |
| **How is it performed?** | The night before the visit and an hour before coming to the laboratory you will be asked to consume 500 mL of water. Upon arrival to the laboratory, you will be asked to go to the privacy of a bathroom to urinate into a small plastic container. You will then give the sample to the study team for immediate analysis. Only a small amount of your urine will be analysed. |
| **What happens to my sample?** | Your sample will not be stored for further analysis and will be destroyed by EIT. However, if it is important to you, we can return your sample to you following each urine analysis or arrange a Karakia prior to destroying any of your remaining samples.  You may hold beliefs about a sacred and shared value of all or any of the urine samples provided. Urine samples provided will be analysed immediately and will not be stored. However, the cultural issues associated with the disposal of your tissue should be discussed with your family/ whānau as appropriate. There are a range of views held by Māori around these issues; some iwi disagree with storage of samples citing whakapapa and advise their people to consult before participating in research where this occurs. However, it is acknowledged that individuals have the right to choose. |
| **When is it performed?** | At the beginning of visits 2, 3 and 4 |
| **Unexpected results** | If you are dehydrated (as indicated by a urine specific gravity of >1.020) you will be asked to consume 500 mL of water, wait 30 minutes, and repeat the test. Alternatively, the visit can be rescheduled. |

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| **Pulse wave velocity (central arterial function)** | |
| **How is it performed?** | You will first be asked to lie down on your back and rest for 5 minutes. Your blood pressure will be taken by inflating a cuff placed around your upper arm. Additionally, three small adhesive electrodes (similar to a plaster) will be placed on your skin to measure your heart rate. One electrode each on the left arm, left leg, and right arm. Once your blood pressure and heart rate have been obtained, a small tonometer (a large pen shaped object) is placed on the skin over an artery in your neck (common carotid artery) first for 10s, and then over an artery in your groin (femoral artery) for 10s. The tonometer measures the changes in pressure within the artery that is generated by your heartbeat. |
| **What does it measure?** | Measures how quickly the pulse (change in pressure) generated by your heartbeat arrives at each artery. |
| **When is it performed?** | At the beginning and end of visits 2, 3 and 4 |
| **Cerebral autoregulation (brain arterial function)** | |
| **How is it performed?** | You will be asked to complete a series of body weight squats. First you will be asked to squat until your knee angle is ~45 degrees (half squat) and hold this position for 5s, then you will be asked to stand for 5s. You will repeat this for 5 minutes. Following 5 minutes break, you will repeat the process above with a 10s pause, and 10s stand, also for 5 minutes. To assess the function of the arteries in your brain, the following measurements will be continuously acquired:   1. Blood velocity in the middle cerebral artery   Involves wearing a headset with an ultrasound probe attached to either side of your head over the temple to measure how fast the blood within an artery in your brain is travelling (see figure below). A small amount of water-based gel will be applied to each ultrasound probe. This is non-invasive and the probes do **not** penetrate the skin.  C:\PhD\LBPP data\LBPP\Doppler photos\ARAM but slightly more forward.JPG   1. Blood pressure   Requires the application of a small finger cuff on the pointer finger. The small cuff inflates and deflates with every heartbeat.   1. Carbon dioxide content of your breath you have breathed out   A small tube will be placed at the entrance of your nose and will sample the air you breathe out for the content of carbon dioxide. |
| **What does it measure?** | Measures the ability of your brain to offset changes in blood pressure and maintain an adequate blood flow to the brain. |
| **When is it performed?** | Before and after exercise at visits 2, 3 and 4 |

## What are the possible risks of this study?

If an abnormal finding is suspected in any of the physiological tests performed in this study (e.g., suspected elevated blood pressure or abnormal heart rhythm) it will be recommended that you visit your general practitioner (doctor).

*Resistance exercise*

The resistance exercise in this study may cause joint or muscular discomfort during the exercise and in the following days (delayed onset muscle soreness). The likelihood of muscle soreness during and following resistance exercise is greater for participants in this study as the exercise is unaccustomed. To allow for sufficient recovery and reduce discomfort, all visits are separated by at least 5 days. Additionally, the intensity of the resistance exercise is considered moderate (60% of your 1-repetition maximum), which is likely to reduce the level of discomfort following exercise compared to higher intensities. All machines will be adjusted to suit your height and limb length, and correct technique demonstrated prior to exercise. Feedback regarding technique will be provided whenever performing resistance exercise. Furthermore, to reduce possible risk of injury the maximum weight you can lift will be estimated using submaximal loads rather than requiring you to produce a maximal effort.

It is possible that you are unable to lift the required load during resistance exercise (e.g. due to fatigue) and be unable complete a repetition or set. The leg press, leg extension and chest press exercises will all be performed using exercise machines, rather than “free” weights (e.g. barbell or dumbbell). The use of resistance exercise machines reduces the likelihood of injury as they have a limited range of motion with inbuilt safety stops that prevent the weight trapping or falling on you should you be unbale to complete the lift. Furthermore, you will be supervised at all times, and the study team will be able to assist you if necessary. For the bicep curl exercise the weight is held by your side, and if a repetition cannot be completed the dumbbell can be lowered and placed on the floor or removed from your hand by a member of the research team.

*Brain arterial function*

During the assessment of brain arterial function, the study team will be closely monitoring your heart rate and blood pressure in real-time for any sudden or large changes If such changes in heart rate or blood pressure occur, or if you begin to experience nausea or light-headedness, the study team will end the visit.

*Breath-holds (Valsalva manoeuvre)*

All breath-holds in the study will be completed in a seated position to reduce the likelihood of you experiencing light-headedness or fainting. Furthermore, the intensity of the breath-hold, (as gauged by the generated mouth pressure) is moderate, and will be closely monitored by the study team, which lowers fainting risk. If you begin to experience nausea or light-headedness, the study team will end the visit.

If a visit must end either due to your voluntary termination, or the study team needs to end the session for your safety, you may either; 1) repeat the visit (if you consent, and at the discretion of the study team), or 2) withdraw from the study. No visit can be repeated more than twice.

## Contact between visits

You can contact the study team by phone or email at any time during the study (see contact details on page 15).

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| **What will happens at the end of the study?** |

Once you have completed the study, it is likely that data collection and analysis will continue for several months. The study team can arrange to have a summary of the results sent to you when they are available.

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| **What are the possible benefits of this study?** |

The study will help provide evidence to inform the prescription of resistance exercise. You will also be provided with expert coaching of correct resistance exercise technique and information about your strength.

## Will any costs be reimbursed?

You will not incur any costs for participating in this study. Upon completion of all visits, you will receive a $130 grocery voucher as koha.

## Can I bring a person with me to the study visits?

A support person/s are welcome to be with you during all study visits, including your familiarisation session. This can be member/s from your whanau/family, friends or community.

## What if something goes wrong?

If you were injured in this study, you would be eligible **to apply** for compensation from ACC just as you would be if you were injured in an accident at work or at home. This does not mean that your claim will automatically be accepted. You will have to lodge a claim with ACC, which may take some time to assess. If your claim is accepted, you will receive funding to assist in your recovery.

If you have private health or life insurance, you may wish to check with your insurer that taking part in this study won’t affect your cover.

## What will happen to my information?

During this study the study team will record information about you and your study participation. This includes the results of any study assessments. You cannot take part in this study if you

do not consent to the collection of this information. Data that is collected from you at any of the study visits, and the results of your study tests, are known as “Source Data”.

Identifiable Information

Identifiable information is any data that could identify you (e.g. your name, date of birth, or address). Only the study team will have access to your identifiable information and this data is held securely under restricted access. The following groups may have access to your identifiable information:

* Study team (to complete study assessments).
* Ethics committees or government agencies from New Zealand if the study or site is audited. Audits are done to make sure that participants are protected, the study is run properly, and the data collected is correct.
* Rarely, it may be necessary for the study team to share your information with other people – for example, if there is a serious threat to public health or safety, or to the life or health of you or another person OR if the information is required in certain legal situations.

De-identified (Coded) Information

To make sure your personal information is kept confidential, information that identifies you will not be included in any report generated by Massey University, EIT or MRINZ. Instead, you will be identified by a unique study ID. The lead researcher (Dr Blake Perry) will keep a list linking your study ID with your name, so that you can be identified by your coded data if needed.

Following completion of the study the results of the study may be published or presented, but not in a form that would reasonably be expected to identify you. After the study we may receive requests to share the study data with other qualified researchers. These requests are processed by the study team and the researchers asking for the data will have to agree that the results are to be used for research purposes only. This future research may be conducted overseas. You will not be told when future research is undertaken using your information. Your information may also be added to information from other studies, to form much larger sets of data. Only de-identified data would ever be shared with other researchers and no data will ever be shared that identifies you directly. Your information may be used indefinitely for future research unless you withdraw your consent. However, it may be extremely difficult or impossible to access your information, or withdraw consent for its use, once your information has been shared for future research.

After the study finishes, due to international research guidelines, this information will continue to be stored securely for at least another 15 years. After this time, the study information can be destroyed, which is done using methods to protect the information including confidential shredding of all hardcopy paper records.

Risks.

Although efforts will be made to protect your privacy, absolute confidentiality of your information cannot be guaranteed. Even with coded and anonymised information, there is no guarantee that you cannot be identified. The risk of people accessing and misusing your information (e.g. making it harder for you to get or keep a job or health insurance) is currently very small but may increase in the future as people find new ways of tracing information.

Rights to Access Your Information.

You have the right to request access to your information held by the research team. You also have the right to request that any information you disagree with is corrected.

Please ask if you would like to access the results of your tests during the study.

If you have any questions about the collection and use of information about you, you should ask the lead investigator (Dr Blake Perry).

Security and Storage of Your Information.

Dr Blake Perry (lead investigator) is an Honorary Research Fellow at the MRINZ. The MRINZ has specialised online servers that are specially designed to securely store research data collected from participants. These servers will be used to electronically store data during the study.

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| **Type of information** | **Where will it be stored?** |
| **Identifiable data – this information can be linked directly back to you (e.g. your name)** | |
| Electronic Source data | Stored securely by the MRINZ on servers in Wellington, New Zealand and Sydney, Australia. |
| Paper source data | Stored securely by EIT at the Institute of Sport and Health laboratory, Hastings, New Zealand. |
| **De-identified data – information linked to you via your study ID only** | |
| Physiological data. Including: results of central and brain arterial function tests, mouth pressure, blood pressure, urine sample, heart rate and carbon dioxide content of expired breath. | Stored securely by the Medical Research Institute of New Zealand on servers in Wellington, New Zealand and Sydney, Australia. |
| Phone number | Stored securely by the MRINZ on servers in Wellington, New Zealand and Sydney, Australia. |

Rights to Withdraw Your Information.

You may withdraw your consent for the collection and use of your information at any time, by informing the lead investigator (Dr Blake Perry). If you withdraw your consent, your study participation will end, and the study team will stop collecting information from you.

If you agree, information collected up until your withdrawal from the study will continue to be used and included in the study. You may ask for it to be deleted when you withdraw, unless you withdraw after the study analyses have been undertaken.

Māori Data Sovereignty

Māori data sovereignty is about protecting information or knowledge that is about (or comes from) Māori people. We recognise the taonga of the data collected for this study. To help protect this taonga:

* We have consulted with Patricia Falleni (Medical Research Institute of New Zealand) about the collection, ownership, and use of study data.
* We allow Māori organisations to access de-identified study data, for uses that may benefit Māori.

**What happens if I change my mind?**

You have the right to withdraw from the study at any point if you change your mind, and you do not have to provide a reason for withdrawing. If you do wish to withdraw we ask that you please inform the lead investigator (Dr Blake Perry).

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| **Who is funding the study?** |

This study is funded by Massey University School of Health Sciences.

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| **Who Has Approved the study?** |

This study has been approved by an independent group of people called a Health and Disability Ethics Committee (HDEC), who check that studies meet established ethical standards. The Central Health and Disability Ethics Committee has approved this study.

## Who do I contact for more information or if I have concerns?

If you have any questions, concerns or complaints about the study at any stage, you can contact:

Name: Dr Blake Perry

Position: Senior Lecturer, Massey University

Phone: +64 4 979 3492

Email: [B.G.Perry@Massey.ac.nz](mailto:B.G.Perry@Massey.ac.nz)

If you want to talk to someone who isn’t involved with the study, you can contact an independent health and disability advocate on:

Phone: 0800 555 050  
Fax: 0800 2 SUPPORT (0800 2787 7678)  
Email: [advocacy@advocacy.org.nz](mailto:advocacy@advocacy.org.nz)

Website: https://www.advocacy.org.nz/

For Māori cultural support please contact:

Name: Nikki Wawatai-Aldrich

Position: Māori mentor, Recreation and Sport Lecturer

Phone: 06 830 1381 Extension: 4381

Email: nwawatai@eit.ac.nz

You can also contact the health and disability ethics committee (HDEC) that approved this study on:

Email: [hdecs@health.govt.nz](mailto:hdecs@health.govt.nz)

Phone: 0800 400 569 (Ministry of Health general enquiries)

CONSENT FORM

**Resistance exercise and artery function**

**Please read the statements below and sign at the end if you agree (consent):**

|  |  |  |
| --- | --- | --- |
| I have read the Participant Information Sheet and I fully comprehend what it says. | | |
| I have been given sufficient time to consider whether or not to participate in this study. | | |
| I have had the opportunity to use a legal representative, whanau/ family support or a friend to help me ask questions and understand the study. | | |
| I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet. | | |
| I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time. | | |
| I consent to the research staff collecting and processing my information, including information about my health. | | |
| I consent to my de-identified information being sent overseas if reasonably requested by researchers outside of the study team. | | |
| If I decide to withdraw from the study, I agree that the information collected about me up to the point when I withdraw may continue to be processed. | Yes 🞏 | No 🞏 |
| I understand that my participation in this study is confidential and that no material, which could identify me personally, will be used in any reports on this study. | | |
| I understand the compensation provisions in case of injury during the study. | | |
| I know who to contact if I have any questions about the study in general. | | |
| I understand my responsibilities as a study participant. | | |
| I wish to receive a summary of the results from the study. | Yes 🞏 | No 🞏 |

***[An electronic signature is equivalent to a wet ink signature]***

**Declaration by participant:**

I hereby consent to take part in this study.

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| Participant’s name: | |
| Signature: | Date: |

**Declaration by member of research team:**

I have given a verbal explanation of the research project to the participant, and have answered the participant’s questions about it.

I believe that the participant understands the study and has given informed consent to participate.

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| Researcher’s name: | |
| Signature: | Date: |