TEXAS A&M UNIVERSITY HUMAN RESEARCH PROTECTION PROGRAM

INFORMED CONSENT DOCUMENT

Title of Research Study: Evaluation of biomarkers for predicting macronutrient intake

Investigator: Nicolaas Deutz, MD, PhD

Key Information:
The following table is a concise and focused presentation of key information to assist you in understanding why you might or might not want to participate in the research. More detailed information is listed later on in this form.

Why you are invited to take part in this study:	You are between the ages of 50 and 75 (inclusive) with no major health concerns.
Purpose of this study:	Compare certain metabolic markers in the blood to the fluid surrounding our tissues (interstitial fluid) after a variety of standardized meals.
Voluntary Participation:	Your decision to be in this study is voluntary.
Right to Withdraw from Study:	If you decide to be in this study and then change your mind, you can leave the study at any time without penalty.
Length of Study Participation:	This study will include 1 screening visit (~2 hours) and a maximum of 4 study visits (~15 hours). All visits will be scheduled at your convenience. You are anticipated to finish all study visits within a 3-6 week timeframe.
Study Procedures:	The main procedures in the study include: Screening visit: Review the Informed Consent Form, conduct medical screening, body composition measurements, and blood draw for clinical chemistry (if fasted) Study visits: Arrive fasted in the morning, place microdialysis catheter in the forearm and an intravenous catheters in the hand, eat a standardized meal followed by sampling from the catheters for 6 hours, consume a second meal and continuing sampling

Risks of Study Participation:	The most common risks from participation in the study will be from the following procedures. Additional details are provided in the section "Are there any risks to me?" - Body composition scanning that includes X-ray - Placement of catheters may cause bruise, infection, allergic reaction, lightheadedness, nausea and possibly vomiting - The temperature controlled hot box may cause minor irritation to your hand - Study meals may cause nausea, diarrhea, bloating, and vomiting
Benefit of Study Participation:	There is no direct benefit to you for participating, but your participation may help researchers learn more about metabolism.
Costs of Participation:	Aside from your time, there are no costs for taking part in the study.
Confidentiality of your information:	Information about you will be kept confidential to the extent permitted or required by law.

Detailed Information: The following is more detailed information about this study in addition to the information listed above.

Who can I talk to?
If you have questions, concerns, or complaints, or think the research has hurt you, talk to the Principal Investigator, Nicolaas Deutz, MD, PhD, at 979-220-2910 or Research Staff at 979-422-1789 or email research@ctral.org.
This research has been reviewed and approved by the Texas A&M Institutional Review Board (IRB). You may talk to them at at 1-979-458-4067, toll free at 1-855-795-8636, or by email at irb@tamu.edu., if

- You cannot reach the research team.
- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

How many people will be in the research?
We expect about 40 people to participate in this research at our site. Our goal is for 33 people to complete all study visits.

What happens if I say yes, I want to be in this research?
Your participation in this study will include 1 screening visit and a maximum of 4 study visits. All visits will be scheduled at your convenience. You are anticipated to finish all study visits within a 3-6 week timeframe. No more than 2 study visits can be completed within a 1 week period. All study procedures performed are for research purposes only and are not considered medical treatment or standard medical care. All personnel have received training for performing the research procedures but may

not have a medical license. The procedures you will be asked to perform are described below.

The screening visit

a. This visit will last about 2 hours and takes place before the first study visit. Before any study-related tests and procedures are performed, researchers will discuss the study, its risks, benefits, and compensation with you. If you agree to participate, you will need to sign this consent form.
b. During the screening visit, you will be asked questions about your health history and use of medication to determine eligibility.
c. Furthermore, we will assess body weight, height, and vital signs.
d. Body composition and bone density will be assessed by Dual energy X-ray Absorptiometry (DXA) and bioelectrical impedance analysis (BIA).
e. Basic demographic information and daily life questionnaires will be administered.
f. If you arrive fasted, then a blood draw, approximately 2.5 teaspoons (12 ml) will be collected to assess some basic clinical chemistry (i.e., Hemoglobin A1C, Insulin, liver and kidney function panel, Lipid panel, complete blood count, and hsCRP), otherwise this blood draw will be collected as part of the baseline blood sample at one of your future visits.

Once the screening test results have been reviewed by the study personnel, we will contact you about participating in the study.

On the evenings before all study visits, from 10pm on, you will refrain from any food and drink intake. Drinking water is allowed. At the end of the study visits, you are allowed to eat and drink again. During the visits there will be the opportunity to watch television, and listen to music etc., as long as you remain in a lying or elevated position on the bed. We will also provide you a meal at the end of the visit.

The study visit(s):

a. Please arrive fasted. This means no food or drink intake after 10pm the night before the visit. You will be allowed to have only water after 10pm. The study involves a maximum of 4 visits. These visits will each last approximately 15 hours. On each visit, you will consume 2 different pre-defined meals spaced approximately 6 hours apart.
b. You will also receive amino acid tracers into your blood through an infusion line. This line is placed under the skin of your forearm using a microdialysis catheter (small, flexible, plastic tube). Amino acids are small parts of protein that naturally occur in food. They are labeled with stable tracers to make them a little heavier than normal so we can recognize them afterwards in the blood. Stable means it is **NOT** radioactive. Your body already has some of these tracers inside; we will simply elevate the amount by about 10% so that our lab machines can count them.
c. Furthermore, the study nurse or other designated researcher will place another intravenous (IV) catheter for blood sampling. This will be in a vein of your arm or hand. It will be flushed with saline. The hand will be placed in a warmed box to increase blood flow. The total volume of blood drawn during the visit will be approximately 4 tablespoons, or 60 ml.
d. During each visit, we will also measure your body weight.

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The order in which you will receive the meal sets will be chosen by chance, like flipping a coin. If all study visits are completed, then you will receive all meal sets. All the above mentioned procedures are experimental. Results of testing are available upon your request.

What are my responsibilities if I take part in this research?
If you take part in the research, it is important for your safety that you:

- Follow the directions of the research staff.
- Tell research staff about all medications you are taking (prescription and over the counter) and all of your health issues.
- Call the research staff at 979-422-1789 if you have any questions.

What happens if I say yes, but I change my mind later?
You are free to leave the study at any time. There are no penalties and you do not lose any benefits to which you are otherwise entitled. Data that we have already used will stay in the study database and cannot be removed in order to maintain the integrity of the research.

Can I be removed from the research without my OK?
You may be removed from the study by the nurse or investigator when, in their opinion, any of the following situations is applicable:

- Determination that a condition developed that would interfere with the research methods, and which was not applicable at screening (e.g., illness, drugs).
- Signs and symptoms not seen at baseline or that worsen in severity during/ after intervention
- Catheters needed for research methods are removed before completion of the study day.
- You are not willing or unable to comply with the guidelines and procedures explained to you and mentioned in this Informed Consent form.

Early termination of your participation in the study, as decided by the Principal Investigator, can occur without your consent and will not have negative consequences for your medical care.

What are the risks of being in this study? (Detailed Risks)
The things that you will be doing or undergoing have significant more risk than you would come across in everyday life. The discomforts and risks include the following:

a. Amino acid tracers: The amino acid tracers are mixed under supervision of a licensed pharmacist in a certified clean room in the Human Clinical Research Building. On the study days, the tracers are filtered as they go directly into the bloodstream. The risks associated administration include allergic reaction and infection, such as a change in body temperature, blood pressure and/or heart rate, flushing, itching, nausea, vomiting, fatigue, body ache, headache, sweating and chills. We will monitor for these side effects during the infusion and stop the study if needed.

b. Blood draws / catheterization: Blood will be drawn multiple times during the long visits. You will receive saline after each blood sample is taken; you should experience no noticeable effects of the blood draws. A risk associated with having

blood drawn is a low concentration of red blood cells. This might increase the need for blood transfusions. This is unlikely for you due to the low volume of blood samples needed for this study. Furthermore, the risk of infection due to having blood drawn. This risk will be small as well, because it will be done using strict procedures to prevent infections.

In some instances, there might be a hematoma or bruise at the site of the catheters, or you might experience some pain as the vessel wall is pierced. Some individuals have a sudden drop in blood pressure in response to the placement of catheters in their arms. Symptoms may include lightheadedness, nausea and vomiting. There are no long-term problems associated with this response. If you should have this response, you will be examined by the study nurse or physician and given the option of discontinuing the experiment. You may get a skin rash. This is associated with an allergic reaction to tape or other medical disposables used for the study. There may also be bleeding when the needles are inserted and when the catheters are removed. You will be given the option of discontinuing the experiment. If they find no reason to stop the study and you want to continue, you will be able to finish the study.

c. Use of temperature controlled box: This method will be used to allow collection of blood from you, which is made “arterialized” by heating the air inside the box and around your hand to 50-55°C. In the event that you experience sensitivity to the heat, a wash cloth or gauze will be placed over the back of your hand and knuckles to avoid localized heating of the thin skin over the knuckles. Additionally, your hand may be removed from the hotbox between blood collections to improve comfort, but must be placed inside the hotbox 10 minutes prior to each blood collection.

d. Assessment of body composition and bone mineral density by dual energy X-ray absorptiometry (DXA): This procedure is used to estimate the amount of fat mass and lean mass in your whole body and in your arms and legs and to measure bone mineral density in your spine and hip. For the DXA-scan you will be required to lie flat on a table for approximately 10 minutes while this test is being performed. The DXA-scans expose you to minimal radiation (2.5 mRem), equal to the natural atmospheric background radiation during 2 days in College Station. It is not harmful to you. All radiation doses carry a finite risk of inducing cancer or genetic disorders in a fetus. The DXA doses are such that these risks are small by comparison with the natural incidence of these conditions.

e. Bioelectrical impedance analysis (BIA): BIA will be performed using the Impedimed DF50 device. Sensors will be placed on the subject’s hand/wrist and foot/ankle for a small electrical current to pass through the body. This provides an estimation of body composition but this device will also present the phase angle. Subjects have to lie flat and still for approximately 1 minute.

f. Intake of study meal(s): As with any new meal, possible side effects are nausea, diarrhea, bloating and vomiting. Also, certain blood values may slightly change without causing you inconvenience. We will monitor this closely and use questionnaires to assess your wellbeing and potential symptoms associated with the intake of study meal(s).

g. Demographic and Socioeconomic Questions: Responding to demographic and socioeconomic questions could cause you to feel uncomfortable or upset. Please tell the study staff if you feel uncomfortable or upset while answering to the questions.

Although the researchers have tried to avoid risks, you may feel that some questions/procedures that are asked of you will be stressful or upsetting. You do not have to answer anything or undergo any procedures you do not want to.

What are the costs of being in the research?
Taking part in this research study will not lead to any costs to you.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study records, to people who have a need to review this information. We cannot promise complete privacy. Organizations that may inspect and copy your information include the TAMU HRPP/IRB and other representatives of this organization.

We may publish the results of this research. However, we will keep your name and other identifying information confidential.

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. This means that the researchers cannot release or use information or documents that may identify you in any action or suit unless you say it is okay. They also cannot provide them as evidence unless you have agreed. This protection includes federal, state, or local civil, criminal, administrative, legislative, or other proceedings. An example would be a court subpoena.

There are some important things that you need to know. The Certificate DOES NOT stop reporting that federal, state or local laws require. Some examples are laws that require reporting of child or elder abuse, some communicable diseases, and threats to harm yourself or others. The Certificate CANNOT BE USED to stop a sponsoring United States federal or state government agency from checking records or evaluating programs. The Certificate DOES NOT stop disclosures required by the federal Food and Drug Administration (FDA). The Certificate also DOES NOT prevent your information from being used for other research if allowed by federal regulations.

Researchers may release information about you when you say it is okay. For example, you may give them permission to release information to insurers, medical providers or any other persons not connected with the research. The Certificate of Confidentiality does not stop you from willingly releasing information about your involvement in this research. It also does not prevent you from having access to your own information.

If identifiers are removed from your identifiable private information or identifiable samples that are collected during this research, that information or those samples could be used for future research studies or distributed to another investigator for future research studies without your additional informed consent.

This would includes the interstitial fluid and blood specimens obtained during this study that will be stored for a minimum 7 years in laboratories, and may be used in future research upon approval of the Texas A&M University Human Research Protection Program office. These samples will be labeled with a code number and not with a name. These samples may be used to study other markers of protein metabolism and gut function. However, *no genetic* testing will occur on these samples. Please indicate whether you permit these specimens to be used in future research by selecting one of the following statements in the REDCap system:

- I **agree** to allow my specimens to be stored for future research.
- I **do not agree** to allow my specimens to be stored for future research.

If, in the future, you decide that you do not want the specimens used for research, please notify the Principal Investigator.

Funded/Supported By: This research is funded/supported by the National Institutes of Health.

What else do I need to know?

If you become ill or get injured as a result of this study (medications, devices or procedures), you should seek medical treatment through your doctor or treatment center of choice. You should promptly tell the study doctor about any illness or injury. Texas A&M University has no program to pay for medical care for research-related injury. This does not keep you from seeking to be paid back for care required because of a bad outcome.

If you agree to take part in this research, we will pay you for each visit you complete. If you agree to take part in this research, we will pay you $20 for the screening visit and $200 for each study visit you complete to compensate for your time and effort. If all visits are completed, you will be compensated up to a total of $820.

The financial office at Texas A&M University may be given your name, address, and Social Security Number in order to issue a check for your study participation. Study payments are considered taxable income and reportable to the IRS. A Form 1099 will be sent to you if your total payments are $600 or more in a calendar year.

Signature Block for Capable Adult
Your signature documents your permission to take part in this research.

Signature of subject	Date
Printed name of subject	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	

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