CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title of Study: The effects of added sugar intake on brain blood flow and hippocampal function in midlife adults

Principal Investigator(s): Christopher Martens, Ph.D.

KEY INFORMATION

Important aspects of the study you should know about first:

- **Purpose:** The purpose of the study is to determine whether eating a diet that is high in added sugars affects brain health in midlife adult men and women.
- **Procedures**: If you choose to participate, you will be asked screening questions about your general health and eating habits. If you qualify, you will be provided with 10-days each of a high and low added sugar diet and we will measure your brain health using an MRI at baseline and after consuming each diet. During a portion of the MRI test, we will ask you to wear a face mask and breathe a small amount of air mixed with carbon dioxide (CO_2) so that we can measure the blood flow to your brain. We will also ask you to wear a physical activity and blood pressure monitor for several days during the study.
- **Duration:** Your involvement in this study will require about 14 hours over 2 months, including a 2-week screening and baseline period, two 10-day diet periods, and a 2-week "washout" period in between each diet. You will be required to visit the University of Delaware about 6-7 times during this period to pick up food or complete testing. Each visit lasts between 30-210 minutes.
- **Risks**: The main risk or discomfort from this research are discomfort associated with having your blood drawn, a slight discomfort from breathing the air mixed with CO2, and general risks from having an MRI such as claustrophobia.
- **Benefits:** The main benefit to you from this research is receiving copies of your bloodwork results and your blood pressure (this information will not be interpreted by the study staff)
- **Alternatives:** There are no known alternatives available to you other than not taking part in this study.
- **Costs and Compensation:** If you decide to participate there will be no additional cost to you and you could be compensated up to $200.
- **Participation:** Taking part or not in this research study is your decision. You can decide to participate and then change your mind at any point

Please carefully read the entire document. You can ask any questions you may have before deciding If you want to participate.

You are being invited to participate in a research study. This consent form tells you about the study including its purpose, what you will be asked to do if you decide to take part, and the risks and benefits of being in the study. Please read the information below and ask us any questions you may have before you decide whether or not you want to participate.

PURPOSE OF THE STUDY

The purpose of this study is to learn about the effects of eating a diet that is high in added sugars on brain health in midlife adults. We are specifically interested in the effects of sugar on an area of the brain called the hippocampus, which is important for learning and recalling memories. Added sugars include all calorie-containing sweeteners that are added to food during processing or preparation and are a major component of a Western diet. Consuming added sugars is associated with an increased risk of obesity, type 2 diabetes, hypertension and cardiovascular disease; however, little is known about their effects on the brain.

WHO IS BEING ASKED TO PARTICIPATE?

You will be one of approximately 200 participants to be enrolled in this study.

You are being asked to participate because you are between 50-64 years of age.

You will not be able to participate if:

- You currently eat a diet that contains an excessively high or low amount of added sugar
- Your blood pressure is ≥ 130/90 mmHg
- Your body mass index (BMI) is ≥ 30 kg/m^2 and your percent body fat indicates that you are obese
- You have clinically high blood triglycerides, total cholesterol or blood glucose
- You have abnormal kidney or liver function based on a blood test
- You are currently taking medications known to lower blood lipids or blood pressure or that affect cognition
- You have been diagnosed with a chronic clinical disease or have had a major change in your health status within the past 6 months (e.g., surgery, significant infection, or illness).
- You have a major psychiatric disorder or major depression
- You have had a concussion within the last 2 years or ≥ 3 lifetime concussions
- You consume a high amount of alcoholic beverages (≥8 drinks/week for women and ≥15 drinks/week for men)
- You are a current smoker or have smoked within the past 3 months
- You engage in a high amount of exercise
- You are unable or unwilling to go in an MRI scanner
- You are pre-menopausal or are receiving hormone replacement therapy

PROCEDURES: WHAT WILL YOU BE ASKED TO DO?

As part of this study, you will be asked to visit the University of Delaware up to 7 times over approximately 2 months. The study requires about 14 hours of your time and includes 2.5 hours of screening tests spread over two visits (one of these visits may be completed from home though video conferencing), a 3.5 hours of baseline testing visits, and two 10-day diet periods with about 3.5 hours of testing at the end of each diet. You will also be required to come to the University at the beginning of each diet to pick up your food. In between each diet period is a 2-week washout period during which you will be allowed to consume your normal diet.

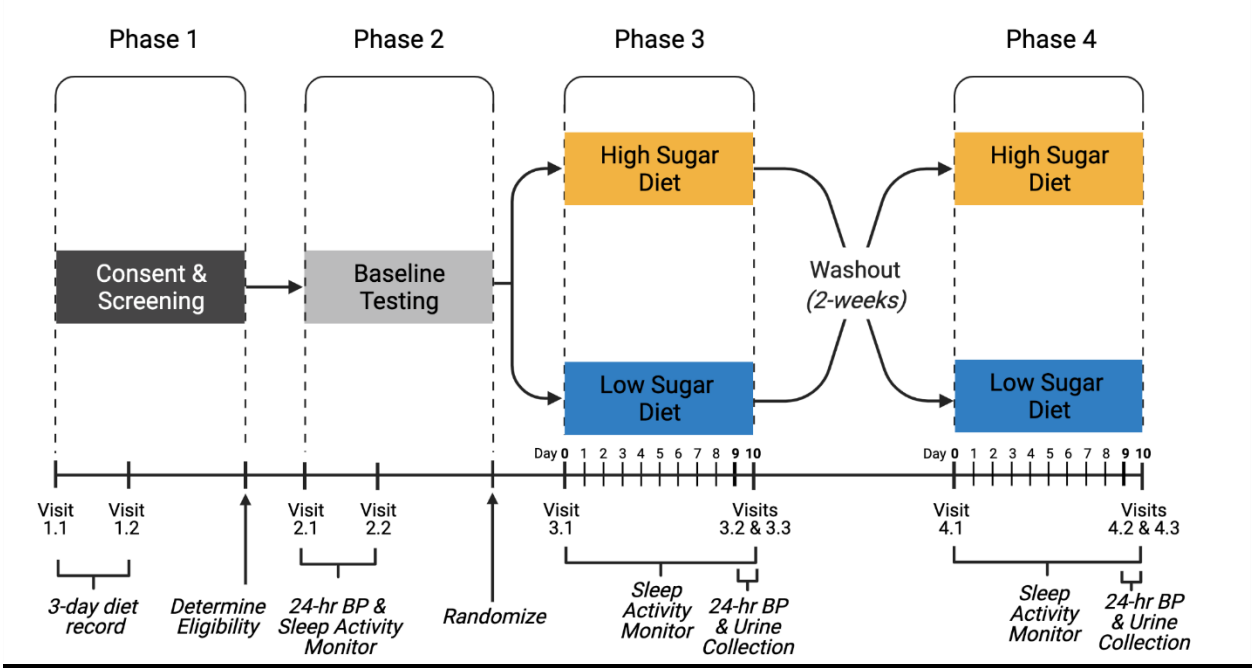

Figure 1. **Overview of study design.** This study will be conducted in four phases. Phase 1 (Consent & Screening) will be completed over 2 visits (Visits 1.1 and 1.2), one of which may be completed virtually. If you are determined to be eligible for the study, you will complete Phase 2 (Baseline Testing), which consists of two testing sessions (Visits 2.1 and 2.2). These may be completed on the same day if your schedule allows. After completing baseline testing, you will be randomized to receive either a high or low sugar diet during Phase 3 and will cross over to the opposite diet during Phase 4 after a 2-week "washout" period during which you will resume eating your normal diet. Phases 3 and 4 are identical except for the diet and require one visit to the University to pick up a 10-day supply of food (Visits 3.1 and 4.1) and one visit to the University to complete post-diet testing on day-10 (Visits 3.2/3.3 and 4.2/4.3). All post-intervention testing will be completed on the same day. Part of the testing will take place on the UD STAR Campus (visits 3.2 and 4.2) and the remaining tests will take place at the UD Center for Biomedical and Brain Imaging (visits 3.3 and 3.4). You will also be asked to complete some testing at home by wearing a 24-hour ambulatory blood pressure monitor (ABPM) or an activity monitor for several days.

The following section provides a detailed overview of what you will be asked to do during each phase of the study. If a measurement is not performed on a specific visit, due to equipment failure and/or timing issues, the measurement may be repeated on another visit:

PHASE 1. CONSENT & SCREENING

Visit 1.1 (1.5 hours) – *This visit may be completed online using a secure video conferencing platform or it may be combined with visit 1.2 and completed in person at the University of Delaware's STAR campus. If combined with visit 1.2, you will need to follow the restrictions listed below for visit 1.2.*

- **Questionnaires.** You will be asked to complete a medical history questionnaire and to provide information about your family history of certain chronic diseases. We will also ask you about any previous exposure to SARS-CoV-2 (i.e., COVID-19) including your current vaccination status. If you are a woman, we will ask you questions about your menstrual history to confirm that you have undergone menopause. We will ask questions about your sleep and physical activity patterns, your food preferences, and your overall quality of life including your sense of fatigue, pain, anxiety, depression, alcohol consumption, and social engagement. Finally, we will ask you questions about any metal implants or claustrophobia to determine if it is safe for you to complete an MRI scan.

- **3-day diet record.** After the visit, we will ask you to record everything you eat over a 3-day period to determine how many calories you currently obtain from added sugars. You will return this log by email or during your next visit to the laboratory.

Visit 1.2 (1 hour) – *You must avoid all over-the-counter medications that have not been prescribed by a physician for 48 hours, vigorous aerobic exercise or alcohol consumption for 24 hours, and all food, supplements and caffeine for at least 12 hours before this visit. You are encouraged to drink water to ensure that you are well hydrated.*

- **Body measures.** We will measure your body height and weight and have you stand on a scale that sends undetectable electrical pulses through your body to measure your body composition. We will also have you sit quietly for about 10 minutes and will measure your resting heart rate and blood pressure using an automated blood pressure device. A tape measure will be used to capture waist circumference.

- **Blood Sampling.** ~4 tablespoons of blood will be drawn by a member of the research team trained in phlebotomy. We will send this blood to LabCorp for analysis of basic clinical values such as your blood sugar and cholesterol. We will also measure whether you carry a gene that is associated with future risk of developing Alzheimer's disease. We will store the remaining blood in our freezers until the end of the study and will analyze it for markers that may be related to blood vessel function (e.g., markers of inflammation).

PHASE 2. BASELINE TESTING

Visit 2.1 (1.5 hours) – This visit will take place at the UD Center for Biomedical and Brain Imaging (CBBI)

You must avoid all over-the-counter medications that have not been prescribed by a physician for 48 hours, vigorous aerobic exercise or alcohol consumption for 24 hours, and all food, supplements and caffeine for at least 12 hours before this visit. You are encouraged to drink water to ensure that you are well hydrated.

- **Questionnaires.** We will review your previous answers to our COVID-19 survey and ask if there are any updates. We will also ask you to repeat the MRI screening form and confirm that you do not have any metal implants or devices that would preclude you from having an MRI.

- **MRI Scan.** This study involves measuring your brain anatomy and brain blood flow using magnetic resonance imaging (MRI). Before you enter the scanner room, you will need to remove all metal objects, like jewelry, watches and hairpins. If you need to remove clothing that contains metal, a gown will be provided to wear during the scan.

    - **Brain Structure Test.** For the first part of the MRI scan you will be required to lie completely still on the scanner bed for about 30 minutes. An apparatus called a "head coil" will surround your head to measure signals emitted from your brain. Your head will be supported with foam pads to make you more comfortable and to help you to keep your head still. Pillows and other cushions may be used (e.g., under your knees) to make you more comfortable. The scanner bed will then slide into the center (bore) of the MRI scanner. Several scans will be performed, and you will need to remain still on the table for about 3 to 12 minutes at a time, and never more than 20 minutes. During part of this test, vibrations will be used to assess the properties of your brain tissue and you will feel your head vibrate. This vibration is at low levels and should not cause discomfort.

    - **Brain Blood Flow Test.** After you complete the brain structure scans, we will briefly bring you out of the MRI scanner and have you put on a rubber face mask so that we can monitor your breathing patterns and deliver a small amount of carbon dioxide to stimulate the blood vessels in your brain. You will also wear a small cuff on your finger to measure your blood pressure. Before you return to the inside of the MRI scanner, we will complete several tests to make sure that you are comfortable and that there are no leaks in the mask. This may involve making some adjustments and we may need to use some mildly adhesive tape to prevent leaks. The tape (Tegaderm™) is designed for use with human skin and should not cause a rash. Once everything is set, we will return the head coil around your head and you will be placed back inside the MRI scanner. During the scan, you will be instructed to breathe at a set rate using either a metronome or a visual cue projected on a computer monitor. You will switch between breathing normal air and air containing a small amount of carbon dioxide (CO_2) over a period of about 7 minutes. You will wear the face mask for the duration of the entire scan but will only be breathing the CO_2 air for 3 minutes. The exact amount of CO_2 that you receive will be determined by a computer and will depend on how fast you breathe and the amount of CO_2 that is already in your lungs. The computer will always deliver a sufficient amount of oxygen regardless of how much CO_2 you are breathing.

During the MRI scans the magnet can be noisy. You will usually hear knocking, buzzing and beeping sounds. We will give you ear protection to block most of the noise. You will still be able to hear us give you directions. During the first portion of the scan you will be able to communicate with us via a built-in intercom. It may be difficult to communicate through the intercom while wearing the mask; however, you will also be holding an emergency bulb that you can squeeze at any time to let us know you want to come out of the MRI scanner. If at any time you feel uncomfortable or unwilling to continue, no matter what the reason, you can request to immediately stop the study, and the operator will remove you from the scanner. All scans are conducted by experienced personnel with relevant safety training.

This is not a medical evaluation. The images of your brain collected in this study are not intended to reveal illness, in part because this research protocol is not designed for medical diagnosis. Your images will not be routinely examined by a radiologist. The personnel at the MRI Center are not qualified to medically evaluate your images. However, if, in the course of collecting images, we have any concerns, we may show your scans to a clinical radiologist, who may suggest that you obtain further diagnostic tests. Do not rely on this research MRI to detect or screen for abnormalities. At the investigator's discretion, you may view your images and receive digital copies of them. These images will show the inside of your body and you should be aware of the potential distress or discomfort that may occur by viewing these type of images.

Visit 2.2 (2 hours) – This visit will take place in the Neurovascular Aging Laboratory on the UD STAR Campus
You must avoid all over-the-counter medications that have not been prescribed by a physician for 48 hours, vigorous aerobic exercise or alcohol consumption for 24 hours, and all food, supplements and caffeine for at least 12 hours before this visit. You are encouraged to drink water to ensure that you are well hydrated.

- **Questionnaires.** We will review your previous answers to our COVID-19 survey and ask if there are any updates. We will also ask about your current appetite including your sensations of hunger, satiety and fullness.
- **Body measures.** We will also have you sit quietly for about 10 minutes and will measure your resting heart rate and blood pressure using an automated blood pressure device. A tape measure will be used to capture waist circumference.
- **Pulse Speed.** We will measure the "stiffness" of your arteries by measuring how fast your pulse travels from your neck to your groin (a faster speed indicates stiffer blood vessels). We will place a small pencil-like probe on your neck and a standard blood pressure cuff around your thigh to measure your pulse. We will also place 3 adhesive electrodes on your chest and abdomen to measure your heart rate. To calculate the speed of your pulse, we will measure the distance between these sites using a measure tape.
- **Pulse at Wrist.** We will measure the pulse at your wrist using a small pencil-like probe.
- **Neck Ultrasound.** An ultrasound sensor will be placed on the surface of the skin above your neck to allow us to measure the amount of blood moving through the arteries in your neck that supply the brain with blood. A video of this image will be recorded.

- **Brain Blood Vessel Test.** A small ultrasound probe will be placed on the top of the skin above your temple, and we will record how fast the blood is moving through a major artery in your brain. At the same time, we will measure the amount of carbon dioxide (CO_2) in the air that you exhale by having you place a soft flexible tube in the front of your nose with ~1 cm extensions that are inserted into the tips of your nostrils and respiration will be measured using a flexible respiration strap. This brain blood vessel test will be measured in response to an acute (~30 second) breath hold. You will be monitored for signs of distress and the test will be stopped immediately if any discomfort is expressed. The breath-hold test is self-guided and you are free to breathe at any time.

- **Cognitive Function.** We will measure your memory and other thinking abilities by having you complete a combination of pen and paper and computerized tests. These tests involve remembering lists of words or ordering words, letters, pictures or numbers.

- **Sleep and Physical Activity Monitor.** We will send you home with a watch that you will wear on your non-dominant wrist for up to 10 days. This watch records sleep and physical activity data. You will return this monitor on one of your next visits to the lab.

- **24-hour blood pressure monitoring.** We will send you home with a blood pressure monitor that you will wear on your upper arm for 24 hours. The monitor is set to automatically record your blood pressure every 20 minutes during the day and every 30 minutes at night. You will return this monitor on your next visit to the lab.

PHASE 3 & 4. DIET INTERVENTION

After completing baseline testing, you will be provided with 10-days each of a high and low added sugar diet during Phases 3 and 4, respectively. The high sugar diet will contain 25% of calories from added sugars and the low sugar diet will contain 5% of calories from added sugars. You will receive each diet in a random order determined by a computer program, and you will not be allowed to choose which diet you start with. Each diet will be separated by a 2-week washout period during which time you will be instructed to consume your regular diet and avoid eating extremely high or low amounts of added sugar. The diets will be individually prepared by a registered dietitian and designed with your food preferences and any food allergies in mind. Each diet will contain enough food to meet your daily energy requirement over a 10-day period. We will also provide you with bottled water. It is important that you avoid eating anything other thing other than the food that we provide. If it is determined that you are eating "outside foods" you may be terminated from the study.

Visits 3.1 & 4.1 (30 minutes) – No restrictions for Visit 3.1; must avoid *vigorous aerobic exercise or alcohol consumption for 24 hours, and all food, supplements and caffeine for at least 12 hours before visit 4.1 as we will be taking a blood sample on this visit. You are encouraged to drink water to ensure that you are well hydrated.*

- **Receive Diet and Equipment** – We will provide you with a cooler containing all of the food needed for the entire 10-day diet period with instructions for any required preparation steps and a log for recording any additional food that you accidentally consume. During Visit 4.1, we will collect a small amount of blood (1/4 tablespoon) to

confirm that your blood lipids have returned to normal during the washout period. We will also send you home with a 24-hour blood pressure monitor, a physical activity monitor, an electronic scale, and a urine collection container. These will all be used at various points throughout the 10-day diet period as detailed below:

- **Body Weight and Appetite (Days 1-10).** You will be required to weigh yourself daily using the electronic scale provided. Each day, you will receive an email notification to complete a survey that asks about your body weight and overall appetite. This survey is administered through a secure HIPAA-compliant platform called REDCap and will not contain your name or other identifiable information.
- **Sleep and Physical Activity Monitor (Days 1-10).** You will wear a small monitor watch on your non-dominant wrist for 10 consecutive days. We will also ask you to keep a log of every time the device is put on or taken off. You will return the activity monitor on day 10 when you come in for your testing visit.
- **24-Hour Blood Pressure Monitor (Days 9-10).** You will wear the blood pressure monitor 24 hours before your scheduled testing visit and will take it off when you return to the laboratory for testing.
- **24-Hour Urine Collection (Days 9-10).** You will be required to collect all urine over a 24-hour period into the provided container during your last day on the diet. You will bring this container with you to the laboratory when you return for your testing session.

Visits 3.2 & 4.2 and (2 hours) – UD STAR Campus.
You must avoid all over-the-counter medications that have not been prescribed by a physician for 48 hours, vigorous aerobic exercise or alcohol consumption for 24 hours, and all food, supplements and caffeine for at least 12 hours before this visit. You are encouraged to drink water to ensure that you are well hydrated.

- These visits will be identical to visit 2.1 and will occur on Day 10 of the diet. You will be required to return your cooler containing any uneaten food on this visit as well as your activity monitor, scale, and urine container. Your 24-hour blood pressure cuff will be removed during this visit.

Visits 3.3 & 4.3 and (1.5 hours) – Center for Biomedical and Brain Imaging.

- These visits will be identical to visit 2.2 and will occur on Day 10 of the diet. You will be required to drive to the MRI center after completing your vascular testing visit on the STAR campus. The MRI session may take place before visits 3.2/4.2 depending on the availability of the MRI scanner for scheduling

WHAT ARE POSSIBLE RISKS AND DISCOMFORTS?

The risks associated with all procedures in this protocol are minimal and the magnitude of harm or discomfort are not greater than those encountered during similar procedures completed as part of routine clinical care (e.g., phlebotomy, MRI scanning). Possible risks of participating in this research study include:

- **High and Low Sugar Diets.** There is minimal risk to consuming a high or low sugar diet for the short duration of this study. Both diets are designed to provide all of the calories you need each day and are not expected to change your body weight. We do not expect the high sugar diet to cause a major increase in your fasting blood sugar; however, we do expect that it will increase blood lipid markers such as your cholesterol and triglyceride levels. These changes are expected to be temporary and should return to normal when you stop eating the diet. There is no evidence that these temporary changes influence your long-term risk of cardiovascular disease or cognitive impairment. The high sugar diet is similar to what a large number of adults in the United States are already consuming on a daily basis.
- **Blood Draw.** When the needle goes into a vein, it hurts for a short time and there may be redness or swelling around where the needle goes into the skin. There is a small chance that you may feel lightheaded or faint. In about 1 in 10 cases, a small amount of bleeding under the skin will cause a bruise. The total amount of blood being drawn over the entire study is approximately 11 Tablespoons (about 1/3 pint). You should not donate blood 8 weeks before or after taking part in this study.
- **Alzheimer's Genetic Test.** There are minimal risks associated with learning your genetic risk for Alzheimer's disease; however, some people may experience emotional difficulties (e.g., mild anxiety, depression…etc.) after learning their test results. People with this gene have a higher chance of developing AD compared with people who do not carry the gene. Some people who carry the gene may never develop AD. Others may develop AD even though they do not carry the gene. This test will be performed in our lab for research purposes only and are not meant to make a conclusion about your risk for AD. Whether or not you receive the results of this test is entirely up to you. We will not interpret these results for you; however, you are encouraged to discuss these results with your primary care practitioner (PCP). This will likely require scheduling an appointment which may be billed to your private health insurance.
- **24-Hour Blood Pressure Monitoring**. There are no known risks associated with wearing the 24-hour blood pressure monitor. Subjects may find it irritating as it inflates regularly.
- **Brain Blood Vessel Function.** There are no risks associated with breathing slightly higher or lower amounts of carbon dioxide. The use of CO_2 to manipulate brain blood flow in humans has been applied clinically and in the research setting for decades without any adverse events. You may feel an increase in heart rate, flushed skin, and minor disorientation and slight metallic taste while breathing the carbon dioxide mixture. A mild headache is also possible. You may experience a dry mouth due to the use of the face mask during the test.
- **MRI Scan.** MRI is an imaging technique that uses radio waves and magnetic fields to produce images of internal structures in your body. Unlike X-rays, the MRI does not use any ionizing radiation, and it does not use radioactivity, so there are no radiation related risks from having an MRI scan done on you. Below there is a description of MRI related risks and what is being done to reduce any possible risks associated with them:

- Metal. The MRI scanner produces a constant strong magnetic field, which may cause any metal implants, clips, or implanted medical devices within your body to shift position or malfunction. You will not be allowed to participate in this study if you have any implanted metal, clips or devices. You will be screened to make sure that it is safe for you to enter a strong magnetic field. Please provide us with as much information as you can, for example if you had surgery in the past, so that we may decide whether it is safe for you to be a participant. Metallic objects brought into the MRI environment can become hazardous projectiles and can also interfere with the data quality. To minimize this risk, metal earrings, other piercings, necklaces and any other metal in contact with your body must be removed prior to the study. You must also remove all items from your pockets, including coins, electronics (including cell phones and hearing aids) and wallets. You must remove belts with metal buckles, and you may be asked to change into a gown that we will provide if your clothing contains significant metal, including metal underwire bras.
- Inner ear damage. MRI scanning produces loud noises that can cause damage to the inner ear if appropriate hearing protection is not used. Earplugs and/or headphones will be provided to protect your ears.
- Claustrophobia. When you are inside the MRI scanner, the "bore" of the scanner will surround the part of your body that is being scanned. In this study, we are interested in brain structure, and your head will be centered inside a close-fitting scanning coil positioned in the bore of the scanner. If you feel anxious in confined, spaces you may not want to participate. If you are unsure, you can try our "mock" scanner to evaluate your comfort level with the enclosed space of the magnet bore. If you decide to participate and begin to feel claustrophobic, you will be able to tell us via the intercom or the squeeze ball and we will discontinue the study immediately.
- Burns. In rare cases, contact with the MRI transmitting and receiving coil, conductive materials such as wires or other metallic objects, or skin-to-skin contact that form conductive loops may result in excessive heating and burns during the experiment. The operators of the MRI scanner will take steps, such as using foam pads when necessary, to minimize this risk. Tattoos with metallic inks can also potentially cause burns. In addition, please let the MRI operator know immediately if you experience any heating or burning sensations during a scan. The scanning session will be stopped as soon as you tell the operator.
- Nerve or muscle stimulation. While the scanner is operating, there is a small chance that the rapidly changing magnetic fields could cause a slight tingling sensation or a muscle twitch, usually felt in the upper arms or torso. While these sensations may be startling, they are not dangerous or a health risk, and they have no lasting consequences. The sensations should stop when the scan ends. Because these sensations may nevertheless be distracting or even possibly uncomfortable, please squeeze the signal bulb to alert the scanner operator if you feel tingling or muscle twitching, and we will immediately stop the scan. You will then have the opportunity to choose to withdraw from the study or to continue.
- Risks from elastography. The elastography scan uses very low-level vibrations, and there is no known risk to vibration exposure at this level. However, it is possible the vibration may cause you to

feel slight discomfort. If this occurs, please alert the scanner operator via intercom or by squeezing the emergency ball and the scan and vibration will be stopped immediately.

- Other Risks. Besides the risks listed above, there are no other known risks from the magnetic field or radio waves at this time. Although brain MRI scanning has been used for more than 30 years, long-term effects are unknown.

WHAT ARE POTENTIAL BENEFITS FROM THE STUDY?

You will not benefit directly from taking part in this research. However, the knowledge gained from this study may contribute to our understanding of how diet affects brain health in midlife adults. Possible benefits include the laboratory test results that you will receive.

NEW FINDINGS THAT COULD AFFECT YOUR PARTICIPATION

During the course of this study, we may learn new important information. This may include information that could cause you to change your mind about participating in the study. If any new important information becomes available while you are a participant we will let you know.

CONFIDENTIALITY: WHO MAY KNOW THAT YOU PARTICIPATED IN THIS RESEARCH?

Your study data will be handled as confidentially as possible. To minimize the risks to confidentiality, we will store your data under a unique participant number known only to the investigators. All data stored in a locked cabinet or on a password protected computer or server indefinitely. If results of this study are published or presented, individual names and other personally identifiable information will not be used. We may obtain recordings of your voice during cognitive testing sessions; however, these recordings will not be linked to your name and will be deleted as soon as we have scored the test. We will keep your study data confidential and only those with permission in the research team will have access to information that identifies you. We may have to report certain information for legal or ethical reasons, such as child abuse, or intent to hurt yourself or others. If required, your records may be inspected by authorized personnel from the University of Delaware Institutional Review Board.

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

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. With this Certificate, researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings.

Exceptions: A Certificate of Confidentiality does not prevent researchers from voluntarily disclosing certain information about you for legal or ethical reasons. For example, we will report information about child abuse, or intent to hurt yourself or others. If an insurer, employer, or other person obtains your written consent to receive research information, we cannot use the Certificate to withhold that information. In addition, the Certificate may

not be used to withhold information from the federal government needed for auditing or evaluating federally funded projects or information needed by the FDA, e.g., for quality assurance or data analysis.

USE OF DATA COLLECTED FROM YOU IN FUTURE RESEARCH:

- Identifiers about you might be removed from the identifiable private information or identifiable biospecimens and after such removal, the information or biospecimens may be used for future research studies or distributed to another investigator for future research studies without additional informed consent from you.
- Future research might include whole genome sequencing (i.e., research about your DNA and complete genetic information); however, this will only be performed using de-identified specimens that cannot be traced back to you in any way.

COSTS AND COMPENSATION

There are no direct costs associated with participating in this study; however, if you choose to discuss your study results with your PCP, you may be billed for their time. You will receive up to $200 ($100 for each completed diet) in the form of a mailed check or pre-paid VISA gift card upon completion of the study. You will not be compensated for Visits 1.1 and 1.2 because you will receive health information free of charge. Compensation does not include travel time, but upon request will compensate subjects for their travel mileage, at the current IRS approved mileage rate. You must return your electronic scale and physical activity monitor in order to receive compensation. You also have the chance to receive an additional $10 for each referral that becomes consented into this study. You will be provided a referral link that can used up to 10 times, accumulating up to an additional $100 in compensation

WHAT IF YOU ARE INJURED DURING PARTICIPATION IN THE STUDY?

If you are injured during your participation in the study, you will be offered first aid at no cost to you. If you need additional medical treatment, the cost of this treatment will be your responsibility or that of a third-party payer (for example, your health insurance). By signing this document, you are not waiving any rights that you may have if injury was the result of negligence of the university or its investigators.

DO YOU HAVE TO TAKE PART IN THIS STUDY?

Taking part in this research study is your decision. You do not have to participate in this research. If you choose to take part, you have the right to stop at any time. If you decide later not to participate, or if you decide to stop taking part in the research, there will be no penalty or loss of benefits to which you are otherwise entitled.
Your decision to stop participation, or not to participate, will not influence current or future relationships with the University of Delaware.

The investigators reserve the right to remove you from the study without your consent if they feels it is in the best interest. If, at any time, you decide to end your participation in this research study, please inform our research team by telling the investigator(s) emailing the laboratory at chs-novalab@udel.edu.

If you, or the investigators, stop your participation in the study we will keep any data collected of you until that point.

If you choose to leave or are withdrawn from the study after the screening visits you will not be compensated. If you consume the prepared diet and complete 24-hour blood pressure monitoring but do not complete the laboratory visit, you will receive $50 for that diet; however, if this occurs during the first diet, we reserve the right to remove you from the study depending on the reason for not completing the laboratory visit.

INSTITUTIONAL REVIEW BOARD

This research study has been reviewed and approved by the University of Delaware Institutional Review Board (UD IRB), which is a committee formally designated to approve, monitor, and review biomedical and behavioral research involving humans. If you have any questions or concerns about your rights as a research participant, you may contact the UD IRB at hsrb-research@udel.edu or (302) 831-2137.

CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues related to this research study you may contact the Principal Investigator, Christopher Martens at (302) 831-7270 or cmartens@udel.edu.

CONSENT TO PARTICIPATE IN THE RESEARCH STUDY:

I have read and understood the information in this form and I agree to participate in the study. I am 18 years of age or older. I have been given the opportunity to ask any questions I had and those questions have been answered to my satisfaction. I understand that I will be given a copy of this form for my records.

_____	_____	_____
Printed Name of Participant (PRINTED NAME)	Signature of Participant (SIGNATURE)	Date
_____	_____	_____
Person Obtaining Consent (PRINTED NAME)	Person Obtaining Consent (SIGNATURE)	Date

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OPTIONAL CONSENT TO BE CONTACTED FOR FUTURE STUDIES:

Do we have your permission to contact you regarding participation in future studies? If you agree to being contacted in the future, we will keep your contact information. Please write your initials next to your preferred choice.

_____ YES _____ NO