

### Why is this research study being done?

The overarching goal of this study is to learn more about the effects of repetitive head trauma on late-life problems with memory, emotional well-being, and cognition.

### Who can participate in this research study?

- Men ages 60 – 80
- Concerned about a change in memory or cognitive function and/or diagnosed with mild cognitive impairment (MCI)
- *If you are a retired professional football player, you must have played at least three seasons at the professional level.*
- *If you are not a retired football player, you must not have had a traumatic brain injury in your lifetime.*

### You should not be in this study if:

- You have a history of stroke or any central nervous system disease (e.g., multiple sclerosis and amyotrophic lateral sclerosis).
- You will also be excluded if you have any condition that makes MRI unsafe (e.g., cardiac pacemaker, epicardial pacemaker leads, or cochlear implants) or if you are claustrophobic. Additionally, if you are physically too large to be comfortable in the MRI (weight over 300 pounds or jacket size greater than 56), you will be excluded.

### What is being asked of participants?

1. Your cognitive status will be evaluated by way of informal interview. This interview will take approximately 30 minutes to complete.
2. You will undergo a series of neuropsychological tests which will assess your memory, concentration, cognitive processing speed (how quickly you are able to think). These tests will be conducted with an examiner using paper and pencils and a computer. The neuropsychological tests will take approximately 2 hours to complete.
3. You will be asked to complete surveys about your mood to determine if depression is present and about your alcohol consumption (if any). These tests will take no more than 30 minutes to complete.
4. You will have an MRI in which we will take images of your brain. This MRI will take place in a large tube shaped magnet. You will be asked to lie on a long narrow table that will slide inside the magnet. The imaging and study measurements produce a knocking noise, so you will be given earplugs. You will be asked to lie still during the entire exam. During part of the MRI, you will be asked to view and remember letters and view faces of people expressing various emotions. We will then test your memory for those letters and ask you to respond by pressing a key which will be on a keypad you will hold in your hand. You will be given specific instructions and a practice session before you begin the memory tasks. The MRI will be conducted by a trained technician, and the neuroradiologist assisting with our project. The MRI will take approximately 75 minutes.
5. You will be asked to provide DNA samples via a buccal swab kit. A research assistant will gather cells from the inside of your cheek, which we will use to determine your ApoE genotype. ApoE is

a protein found normally in the body that exists in three different forms or genotypes: E2, E3, and E4. ApoE is part of your genetic make-up. It is well known that certain ApoE combinations place people at risk for developing neurocognitive disorders such as Alzheimer's disease. You will read, sign and date another consent form which will further explain the collection of the DNA samples.

6. You will be asked to complete a test of your balance. This test will take 10 minutes and involves standing quietly on a platform while your movements are recorded.

**What are the risks?**

1. The only foreseeable risk we anticipate from taking the neuropsychological tests is mental fatigue.
2. MRI is an approved imaging technique that does not involve the use of ionizing radiation (standard x-rays). It does involve the use of magnetic fields to image the body. There are no apparent risks from MRI, diffusion imaging, blood flow measurements, or oxygen tension measurements. The examination is not uncomfortable, but does take place in a small space. If you have claustrophobia (fear of enclosed spaces) you should let the technician in charge of the examination know.

**Will you receive anything for being in this study?**

All of your travel related expenses will be paid for by the study. Airfare, hotel, and meals for one night and one day. Additionally, you may elect to receive the results of a portion of the neuropsychological testing and a copy of your MRI. These will not be interpreted by our research center, but you may choose to have the results interpreted by a licensed professional.

**What if I have questions?**

If you have questions or concerns, please feel free to call or email us at 919-590-9167, or email [michael\\_clark@med.unc.edu](mailto:michael_clark@med.unc.edu)