

Subject Number: _____

Subject Group: E

1. Load MATLAB code for the right group
2. Prepare cortisol samples
3. Print:
 - a. Consent form
 - b. Demographics form
 - c. Health form
 - d. Stress sheet
 - e. Awareness sheet
4. Prepare BIOPAC machine
 - a. Power plug
 - b. Voltage control
 - c. Prep tape strips
 - d. Gel and paper towels
 - e. Saline
 - f. Set Voltages to 0
 - g. Leave electrodes unplugged

MAPLAB SNL Checklist- E

1. Record Subject Number: _____
2. Have them put their things in the cubby space and ask them if they would like to use the bathroom before getting started. Kindly ask them to go wash out their mouth for the later saliva sample (check if complete): _____
3. Stress Script:
 - a. "This is a stress study, meaning participants are randomly assigned to either a stress condition or non-stress condition. The stress condition is induced by applying a safe electrical stimulation to the ankle. If you are assigned to the stress condition, we will work with you to set the level of stimulation not to exceed your personally-identified maximum. You will be told whether your participant number has been assigned to the stress condition at a later point in the study. We'll explain more details about the stress setup at that time, for experimental reasons and because you truly may not be assigned to that group – but of course we need to make sure at this stage that you are, in principle, willing to participate in that group if you are assigned to it."
4. Consent Form (check if complete): _____
 - a. "Please read and review this consent form. If you agree to participate, sign your full name at the bottom. Please let me know if you have any questions."
5. Cortisol 1 Label Number: _____. Record collection time: ____:____ AM / PM
 - a. "Before we move on to the computer tasks, I am going to take your first saliva sample. I will place the swab in your mouth and you will move it around for 60 seconds. Do NOT touch the swab with your hand. I will remove it when the 60 seconds ends."
6. Assignment Script:

Subject Number: _____

Subject Group: E

- a. "For this portion of the study your participant number has been randomly assigned to the stress condition. As mentioned earlier, you will receive brief electrical stimulations to the left ankle randomly during this phase of the study. The shocks are unrelated to performance, and you won't know when to expect them. So the idea is that you will be unsure when it is coming and develop a level of stress because of that. First, we will go through a work-up to set a level of stimulation that you consider to be moderately painful, but not unbearable (something you might describe as a 7/10) – again, the idea is that it is a safe level of shock but it is unpleasant such that you aren't looking forward to it. The total number of shocks randomly delivered during the task will be at least two, and no more than 7."

7. Workup:

- a. Minimum Level: _____ mA @ _____%
- b. Pain Level: _____ mA @ _____

8. Exposure phase: record start time: ____:____ AM / PM

- a. Cortisol 2 Label Number: _____. Record collection time: ____:____ AM / PM

9. Demographics (check if complete): ____

10. Health Sheet (check if complete): ____

11. Parsing phase: record start time: ____:____ AM / PM

- a. Cortisol 3 Label Number: _____. Record collection time: ____:____ AM / PM

12. Stress sheet (check if complete): ____

13. Awareness sheet (check if complete): ____

14. Pay participant or provide credit (circle if complete): Paid or Credit

15. Move data to appropriate folder (check if complete): ____

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Study Name: _____

Participant ID: _____

Date + Time: _____

MAP Lab Information Form

Name: _____

E-mail address: _____ Phone number: _____

Years of Education: _____ Age: _____ Sex: _____ Handedness: _____

Race (circle all that apply):

☐ American Indian/Alaskan

☐ Asian

☐ Pacific Islander

☐ Black/African American

☐ White

☐ Hispanic/Latino

Is English your first language? ☐ Yes ☐ No

If no, at what age did you start learning it? _____

Are you Bilingual? ☐ Yes ☐ No

Do you have normal (or corrected to normal) vision? ☐ Yes ☐ No

If you are participating in an fMRI or EEG study, would you be able to wear contacts for the experiment? ☐ Yes ☐ No

Are you colorblind? ☐ Yes ☐ No

Do you have normal (or corrected to normal) hearing? ☐ Yes ☐ No

How would you rate your general health?

☐ Poor ☐ Fair ☐ Good ☐ Excellent

1. Are you currently taking any medications or any illegal drugs? ☐ Yes ☐ No

2. Do you have a pacemaker, vagus nerve stimulator, or other electrical implant?

☐ Yes ☐ No

3. Do you have a history of head trauma? ☐ Yes ☐ No

4. Have you ever had a seizure? ☐ Yes ☐ No

5. Do you have any speech, sensory, or motor impairments or a learning disability?

☐ Yes ☐ No

6. Have you ever been diagnosed with a psychiatric illness, or seen anyone for emotional or psychiatric problems? ☐ Yes ☐ No

7. Have you ever been on any anti-depressant, neuroleptic, or sedative medications?

☐ Yes ☐ No

Are you currently taking? ☐ Yes ☐ No

8. Have you ever used illegal drugs in the past? ☐ Yes ☐ No

9. Do you have a history of cardiac or other general health-related problems?

☐ Yes ☐ No

Please respond to the following specific health conditions – write N/A if a condition is not applicable

- Respiratory Problems?
+ Medications? _____
- Heart Disease?
+ Medications? _____
- High Blood Pressure?
+ Medications? _____
- Low Blood Pressure or Anemia?
+ Medications? _____
- Diabetes?
+ Medications? _____
- Sickle Cell Anemia?
+ Medications? _____
- Parkinson's/Alzheimer's?
+ Medications? _____
- Stroke?
+ Medications? _____
- ADD/ADHD?
+ Medications? _____
- Multiple Sclerosis?
+ Medications? _____
- Arthritis (problems with hands or back)?
+ Medications? _____
- Other health problems we haven't mentioned?

Are you currently ill? _____ Yes _____ No

Do you / could you have:

Rhinovirus / "cold"	_____ Yes	_____ No
Influenza virus	_____ Yes	_____ No
Epstein-Barr virus / "mono"	_____ Yes	_____ No
Type 1 herpes	_____ Yes	_____ No
Strep bacteria	_____ Yes	_____ No
Hepatitis B or hepatitis C	_____ Yes	_____ No
HIV	_____ Yes	_____ No

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Study Name: SNL

Participant ID: _____

MAP Lab Supplemental Demographics

How many hours of sleep did you get last night? _____

Was this sleep restful (circle one)? **Yes** - **No**

Was this sleep different than normal (circle one)? **More** - **Less**

What time did you wake up this morning? _____

Study Name _____ SNL _____
Subject Number _____

Subject Post-Questionnaire

1. How many shocks did you receive in total? _____
2. Please use the scale below to indicate how true each word describes you during this test session:

1	2	3	4	5	6	7
Not at all		Somewhat		Moderately so		Very much so

- a. Anxious _____
- b. Happy _____
- c. Safe _____
- d. Stressed _____

3. In general, how distracted did you feel during this test session?

4. In general, how anxious/stressed did you feel during this test session?

5. Did your overall level of distraction change throughout the test session?

6. How likely did you think a shock was during each trial? Did this change at all after you received a shock? If you did not receive any shocks, please write "N/A."

7. Over the course of the test session, did you feel like the likelihood of shock changed? If you did not receive any shocks, please write "N/A."

8. How much stress are you experiencing in your life right now? (Circle a number below)

1	2	3	4	5	6	7
None			Moderate Amount			Extreme Amount

9. What is the primary source of stress in your life?

Study Name _____ SNL _____
Subject Number _____

Experiment Wrap-up Survey**Subject Number: _____**

1. What strategy did you use in the previous phase to determine breaking points between discs?

2. Record your groupings of the discs in the space below, using the numbers (1-15) for the discs. Do not use any disc more than once. You may use as many or as few groups as you see fit.

3. Please circle the numbers corresponding to the four discs you are most likely to see following the selected disc on the screen.

A.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
B.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
E.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
F.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Thank you for your participation in today's study!

**Consent Document for Enrolling
Adult Participants in a Research Study
at the
*Memory, Affect, and Planning Laboratory***

**School of Psychology, Georgia Institute of Technology,
654 Cherry St NW, Atlanta, GA 30332-0170**

Project Title

Mechanisms of Stress on Memory and Cognition

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Purpose

The purpose of this study is to examine how memories for spatial and non-spatial events are formed and retrieved by the brain, and how this changes across the lifespan. We are interested in how the experience of stress affects those processes. Your results will be combined with those of other healthy volunteers. Your results will help us understand how the brain creates memories in young and older adults. We expect to enroll 300 people in this study.

Introduction

You are being asked to participate in a research study. Your participation is voluntary. Please feel free to ask questions at any time if there is anything that you do not understand. Stress will be induced in 50% of the participants (you will be randomly assigned to the stress or control group, and by signing this form you give consent to this). Stress will be induced by a SAFE but unpredictable electrical stimulation on your ankle (more detail below).



If you are eligible to participate and you provide written informed consent, you will be asked to perform several tasks. These tasks involve viewing pictures on a computer screen or listening for words to be presented and responding quickly with judgments about them or simply to indicate that you have seen them. Your responses will be recorded by a researcher or automatically by a computer. These tasks will require between 30-180 minutes to complete. If you are participating in an aging study, sessions will require no more than 90 minutes to complete.

At the discretion of the protocol director subjects may be taken out of this study due to unanticipated circumstances. Some possible reasons for withdrawal are:

- failure to follow instructions
- the investigator decides that continuation would be harmful to you
- the study is canceled
- not meeting inclusion criteria
- other administrative reasons

Exclusion/Inclusion Criteria

It may not be appropriate for people with the following conditions to participate. The researchers will ask you to review a list of conditions and tell them if any apply to you. **If you have any of the following, you will be excluded from this study for your own comfort and the integrity of our findings:** history of neurological or psychiatric disorder; a history of stroke or seizure; history of head trauma; loss of consciousness; brain damage; pacemakers, vagus nerve stimulator, or other electrical implant; heart attack; epilepsy; bipolar disorder; untreated depression or anxiety; Attention Deficit Disorder; untreated or uncorrected vision; color blindness; people who regularly use illegal drugs; currently or regularly use psychoactive drugs. You must be fluent in English and have normal hearing. Individuals scoring < 3 on WAIS-R forward span, < 2 on WAIS-R backward span, and failing to name more than 2 vegetable names will be excluded from the study.

You must be between the ages of 18-40 or 60-80 to participate.

Procedures

- If you decide to participate, Dr. Brown or a designated representative will describe the procedure to you.
- As part of this study, you also may be asked to come into Dr. Brown's laboratory on one or more occasions. Whether this specific study involves one or two sessions depends on the experiment, and was communicated using the recruitment materials. During these sessions, you may be asked to fill out one or more questionnaires, and/or perform a computer-controlled cognitive task. In the cognitive task, you will either passively attend to or actively respond in one or more of the following experimental conditions:



1. Passive watching or listening to stimulus information (e.g., visually or aurally presented words or numbers and/or visually presented images)
 2. Watching or listening to stimuli and making a response (e.g., a finger or verbal response) about the type of stimuli seen or heard. Typically, your study will be a blend of the two – e.g., you will passively view a video of a navigational route, and then you will be asked to actively respond to a memory probe such as “which way would you turn at this location” using a button box.
- No sessions may exceed 3 hours, no tasks may exceed 2.5. If you are participating in an aging study, sessions will require no more than 90 minutes to complete.
 - First, you will review the screening questionnaires and complete the health screening forms. We will discuss activities of this specific study, and you may ask all the questions you have before proceeding.
After a session is finished, you may be asked to perform some simple paper and pencil or computer tasks for a maximum of 30 minutes. These include standardized questionnaires, and we may ask you to briefly describe your experience with the task you completed - for example, were there virtual environments or pictures that you found harder to learn. They are very simple. They will be performed in the Memory, Affect, and Planning Laboratory
 - **You are free to quit the study at any time, without penalty, and this will in no way affect any compensation you have earned.**

Electrical Stimulation

The electrical stimulation task will involve a calibration period in which your tolerance to pain stimulation will be assessed. During the electrical stimulation task, an electrode will be applied to your wrist or foot through which low and safe levels of electrical stimulation will be delivered for very brief durations during identified periods of the task. The level of stimulation you receive during the subsequent tasks will never exceed what you identify as your maximum during the calibration period.

In addition, we may obtain saliva samples from you for measuring hormone levels during the task. The method used to obtain a sample will involve a sterile cotton swab called a “Salivette” to collect saliva from your mouth. These sampling procedures will not cause you any discomfort. The saliva obtained will either be analyzed at a local laboratory at Georgia Tech or a research laboratory in another U.S. university that specializes in the analysis of hormone samples. There is nothing experimental in this cotton swab. The methods used to obtain and analyze hormones are based on standardized protocols. Research using saliva is an important way to try to understand the role hormones play in cognition and emotion. Your saliva will be stored under a unique identifier code. Only the Principal Investigator will have access to the single file in the laboratory that links you to the saliva sample. This file will be kept under lock and key. When the saliva is sent out for processing, it will be completely de-identified. There will be no personal information other than the unique identification number attached to each saliva sample. Your name or other public identifiers will not be included with any data shared with other



investigators, and no analysis on the sample will be done outside of the hormone level measure. There is no risk associated with the method for obtaining the sample.

Risks or Discomforts

There are no known risks associated with the behavioral procedures. Some of the questionnaires will ask you for personal information (e.g. medical history). You do not have to answer any questions that make you uncomfortable.

Some participants may experience motion sickness specific to completing virtual navigation tasks. This is rare, and should you experience motion sickness, you must notify the experimenter(s) and are free to quit the experiment at any time.

Due to the highly focal and carefully restricted nature of the stimulation, there are no known risks of the stimulation to fetuses in women who may be pregnant.

Though the levels of electrical stimulation used in the calibration and tasks are safe and have been used in previous experiments, there are several things you should know before participating in this component of the study.

1. You will experience physical discomfort due to electrical stimulation. The level of stimulation is designed to be uncomfortable and require some effort to tolerate. This level of stimulation is completely safe and has been used in experimental research at a number of institutions.
2. Some participants experience mild skin irritation from the application of the stimulation electrodes. This irritation is not expected to last long.
3. We will, to the extent possible, attempt to minimize such risks through careful adherence to safety precautions and study procedures, and through continuous attention to your well-being. If you experience discomfort at any time, notify the experimenter. You may discontinue participation at any time.
4. Voltage is potentially dangerous if applied improperly to the body. Electrodes will be placed next to each other on the same ankle, far from the heart, so that the safe level of stimulation that you set cannot cross your body or heart.

Benefits

Although there is no direct benefit to you, your participation will help us to better understand the relationship between the brain and memory and how memory and the brain change as people get older.

Compensation to You

- You may choose to either receive course credit or to be compensated with money for your participation. Monetary compensation is \$15 per hour. If you drove to the Joint Center for Advanced Brain Imaging or took public transportation, you will also be compensated \$5 for your travel costs (e.g., MARTA, gas).
- For course credit, you will receive 1.0 credit for Psychology courses for each hour of your participation. Your professor can give you another option to receive course credit.



- If you are physically unable to complete the study, you will receive full compensation.
- U.S. Tax Law requires that a 1099-misc be issued if U.S. tax residents receive \$600 or more per calendar year. If non-U.S. tax residents receive more than \$75, mandatory 30% withholding is required. Your address and Tax I.D. may be collected for compensation purposes only. This information will be shared only with the Georgia Tech department that issues compensation, if any, for your participation.

Storing and Sharing and Future Use of Your Information

Your participation in this study is gratefully acknowledged. It is possible that your information/data will be enormously valuable for other research purposes. By signing below, you consent for your **de-identified** information/data to be stored by the researcher and to be shared with other researchers in future studies. Your data may also be included in the National Institutes of Health (NIH) data archive. If you agree to allow such future sharing and use, your identity will be completely separated from your information/data. Future researchers will not have a way to identify you. Any future research must be approved by an ethics committee before being undertaken.

Confidentiality

The following procedures will be followed to keep your personal information confidential in this study: The data collected about you will be kept private to the extent required by law.

- To protect your privacy, your records will be kept under a code number rather than by name.
- Your records will be kept in locked files and only study staff will be allowed to look at them.
- Your name and any other fact that might point to you will not appear when results of this study are presented or published.
- Your privacy will be protected to the extent required by law.
- To make sure that this research is being carried out in the proper way, the Joint Center for Advanced Brain Imaging IRB may review study records. The Office of Human Research Protections may also look over study records during required reviews.

Requirements of Certificate of Confidentiality policy that applies to research conducted or supported by NIH involving a participant's identifiable or sensitive information

We have obtained a Certificate of Confidentiality from the National Institutes of Health to help us keep your information confidential. This Certificate provides a way that 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. The Certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of Federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA). A Certificate of



Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the Certificate to withhold that information.

Cost to you

There are no costs to you, other than your time, for being in this study

In Case of Injury/Harm

If you are injured as a result of being in this study, please contact Principal Investigator, Dr. Thackery Brown, Ph.D., at 404-894-1123. Neither the Principal Investigator, nor Georgia Institute of Technology, nor Georgia State University has made provision for payment of costs associated with any injury resulting from participation in this study.

Participant Rights

- Your participation in this study is voluntary. You do not have to be in this study if you don't want to be.
- You have the right to change your mind and leave the study at any time without giving any reason and without penalty.
- Any new information that may make you change your mind about being in this study will be given to you.
- You will be given a copy of this consent form to keep.
- You do not waive any of your legal rights by signing this consent form.

Questions about the Study

If you have questions about the study, contact the principal investigator, Dr. Thackery Brown at the School of Psychology, Georgia Institute of Technology, 654 Cherry St NW, Atlanta, GA 30332-0170. Voice: 404-894-1123, thackery.brown@psych.gatech.edu.

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.

Questions about Your Rights as a Research Participant

If you have any questions about your rights as a research participant, you may contact Ms. Kelly Winn, Office of Research Integrity Assurance, Georgia Institute of Technology, Atlanta, GA 30332-0420. Voice 404-385-2175, Fax 404-385-2081



Signatures

If you sign below, it means that you have read (or have had read to you) the information given in this consent form, and you would like to be a volunteer in this study.

Participant Name (printed)

Participant Signature

Date

Person Obtaining Consent (printed)

Signature of Person Obtaining Consent

Date

Consent to Store and Share your Information:

I agree that my de-identified information/data/scans may be stored and shared for future, unspecified research.

SIGNATURE _____

I do not allow my de-identified information/data/scans to be stored and shared for future, unspecified research. These may only be used for this specific study.

SIGNATURE _____

