Official Title: Effects of Smoking State on Effort-based Decision Making
NCT04826276
IRB-Approved Date: 10/10/2022

Wake Forest®
School of Medicine

Department/Section of Physiology and Pharmacology

EFFECTS OF SMOKING STATE ON EFFORT-BASED DECISION MAKING

Informed Consent Form to Participate in Research
Merideth Addicott, PhD, Principal Investigator

SUMMARY

You are invited to participate in a research study. The purpose of this research is to learn how smoking cigarettes and withdrawal from smoking affect decision making and brain function. You are invited to be in this study because you smoke cigarettes and/or vape nicotine.

If you join this study, we will ask you questions about your tobacco and other drug use. We will ask you to provide breath samples, urine samples, and undergo magnetic resonance imaging (MRI). You will also complete computer tasks and questionnaires. Your participation in this research will involve last about 3 days, for 2-3 hours each day. These study days should be completed within 2-3 weeks. On one of these study days, we will ask you to not use any tobacco or nicotine for 12 hours (i.e., overnight) before the study visit.

All research studies involve some risks. There may be some physical or emotional discomfort caused by the tasks. The MRI scan is loud and may cause discomfort. There is also a risk of experiencing claustrophobia (fear of closed spaces) during the MRI scan. Not using cigarettes or nicotine for 12 hours can cause symptoms of nicotine withdrawal, such as craving, difficulty concentrating, and bad mood. You may not benefit from participation in this study.

Your participation in this study is voluntary. You do not have to participate in this study if you do not want to. You will not lose any services, benefits, or rights you would normally have if you choose not to participate.

The remainder of this form contains a more complete description of this study. Please read this description carefully. You can ask any questions if you need help deciding whether to join the study. The person in charge of this study is Merideth Addicott. If you have questions, suggestions, or concerns regarding this study or you want to withdraw from the study her contact information is: [redacted] or [redacted]

If you have any questions, suggestions or concerns about your rights as a volunteer in this research, contact the Institutional Review Board at [redacted] or the Research Subject Advocate at Wake Forest at [redacted].

INTRODUCTION

You are invited to be in a research study. Research studies are designed to gain scientific knowledge that may help other people in the future. You are being asked to take part in this study because you are a cigarette smoker and/or vape nicotine. Your participation is voluntary. Please take your time in making your decision as to whether or not you wish to participate. Ask your study doctor or the study staff to explain any words or information contained in this informed consent document that you do not understand. You may also discuss the study with your friends and family.

WHY IS THIS STUDY BEING DONE?

The purpose of this research study is to learn more about how tobacco use affects the brains and behavior of current smokers. In particular, we are interested in how people think and act after smoking as usual compared to when they have not smoked for at least 12 hours.

We are interested in effort-based decision making, which is the decision to choose high or low-effort tasks depending on how those tasks are rewarded. These tasks will be done during the magnetic resonance imaging (MRI) scan. We are also interested in distress tolerance, which is the ability to continue doing something while feeling physical or emotional discomfort. These tasks will be done at a desktop computer.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

We will ask up to 30 people ages 18-55 years old to sign up for the study so we have at least 19 people finish the study.

WHAT IS INVOLVED IN THE STUDY?

First, we will see if you qualify to be in the study. We will do this by performing the following tests and procedures today…

- *General information about you.* We will need to know your name, age, sex, race, address, medical history, and phone number. We will also need to know about your smoking/vaping history.
- *Urine Sample Collection*: You will provide a urine sample that will be used to test for drugs, nicotine, and nicotine metabolites (i.e., how your body breaks down nicotine). Some prescription drugs can also be detected by this urine drug test. If you test positive for any of the drugs measured by the drug test, you may not be allowed to participate in this study.
- *Women of Child-Bearing Potential:* A urine pregnancy test will be done for women. Pregnant women will not be allowed to participate.
- *Drug Use History:* You will provide information about your current and past use of prescription and non-prescription drugs.

- *Expired Breath*: You will blow into a tube to measure alcohol and carbon monoxide in your exhaled breath.
- *Psychiatric Screen:* You will undergo an interview for symptoms of psychological disorders.
- *MRI Safety Checklist:* You will provide information about your eligibility to undergo magnetic resonance imaging.
- *Eye Exam:* A standard eye chart will be used to measure your visual acuity.
- *Computer Task Practice:* At a desktop computer, you will practice the effort tasks that you will perform later during the MRI scan.
- These procedures will take place in One Technology Plaza.

If you qualify, we will do these things today:

- Ask you to complete other questionnaires about your mood and behaviors, and education/employment history.
- Ask you to provide a saliva sample to be saved for future research. This sample will be kept at One Technology Plaza and will only be used by Dr. Addicott. An Institutional Review Board (IRB) must also approve any future research study using your saliva sample. This testing may look at how different genes are turned on or off by a process called methylation. We will not perform tests of genetic diseases or whole genome sequencing. You may opt out of providing a saliva sample and remain in the study. You will not be told about the results of the testing.
- Schedule you for 2 MRI study visits.

MRI Study Visits:

- During this visit, you will be in the MRI scanner for about 1 hour. You will arrive 1 hour before the MRI to play computer tasks and answer some questions about your tobacco use and personality traits. In one task, you will be asked to add digits together. In the other task, you will be asked to move a mouse cursor around the shape of a star shown onscreen. These tasks make loud noises when you perform the task incorrectly. You may stop performing these tasks at any time. You will also be asked to hold your breath for as long as you can.
- For the MRI procedure, you will lie on your back on a bed that slides into the MRI scanner. A coil will be placed around your head so that we can take pictures of your brain. The MRI technician will make sure your head is in the proper place to take pictures of brain activity. The scanner is open on both ends and there will always be constant airflow through the scanner.

- During the scan you will, at times, hear loud noises from the MRI. You will wear earplugs to reduce the noise.
- A mirror will be placed on the head coil so that you can see images projected on the screen behind you. If you have poor vision, we will offer non-metal eyeglasses. You will hold a response box with buttons to press while you do the tasks in the MRI. A call button will be placed next to you so that you can signal the coordinator if you are uncomfortable.
- While in the MRI, we will take a picture of your brain. No contrast agents or dyes will be used during the MRI session.
- Then, you will be asked to play the computer tasks that you practiced during the screening session. The computer tasks will last about 25 minutes.
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- Prior to one of these study visits, you will be asked to smoke as usual. Prior to the other study visit, you will be asked to not use any tobacco or nicotine for at least 12 hours before the visit.
- These procedures will take place in the Wake Forest MRI Center.

STORAGE OF SALIVA SAMPLES

If you agree to participate in this study, we will ask for a saliva sample to use in future research to learn more about smoking. Your saliva sample will be obtained in the Physiology and Pharmacology Department at Wake Forest University Baptist Medical Center and stored here. It will only be given to researchers approved by Dr. Addicott. An Institutional Review Board (IRB) must also approve any future research study using your saliva sample. You do not have to provide a saliva sample to participate in this study.

The research that may be performed with your saliva sample is not designed to help you specifically. There is no personal benefit to you from taking part in this aspect of the research study. It might help people who have tobacco use disorder at some point in the future, but it is not known if this will happen. The results of the research performed with your saliva will not be given to you or your doctor. The results will not be put in your medical record. The research using your saliva sample will not affect your care.

Your saliva sample will be used only for research and will not be sold. The findings from this research may result in the future development of products that are of commercial value. There are no plans to share any of the profits with you which may occur as a result of the research.

The sample will have a unique identifier and will not include any identifiable information about you such as your name, address, telephone number, social security number, medical record number or any of the identifiers outlined in the HIPAA Privacy Rule. The unique identifier will be a randomly assigned number and only the Principal Investigator will have access to the code that links the unique identifier to you. Your name, address, social security number, etc., will

never be disclosed and neither will the code that links your identifiers to the sample. You will not be contacted in the future.

SHARING OF NEUROIMAGING DATA

If you agree, Dr. Addicott may share your de-identified neuroimaging data (no names) with other investigators or with large, public neuroimaging databases that allow scientists to share their data and methods. These neuroimaging databases store uploaded data indefinitely and have no provisions for individual participants to withdraw their data. However, all data will be de-identified prior to sharing with individual scientists or neuroimaging databases. This means that all identifying information (such as names, dates, addresses, etc.) will be removed from data prior to sharing.

HOW LONG WILL I BE IN THE STUDY?

You will be in the study for 3 days. The consenting and screening session will take about 3 hours and both MRI study visits will take about 2-3 hours each. You will participate for about 9 hours total. The MRI study visits must be at least 48 hours apart. All 3 study visits should be completed within 3 weeks.

You can stop participating at any time. If you decide to stop participating in the study we encourage you to talk to the investigators or study staff first to learn about any potential health or safety consequences.

WHAT ARE THE RISKS OF THE STUDY?

- Someone could find out that you were in the study and learn something about you that you did not want others to know. We will do our best to protect your privacy. Efforts, such as coding research records, keeping research records secure and allowing only authorized people to have access to research records, will be made to keep your information safe.
- As part of this study, you will be asked questions about your mental health and daily activities. If we learn that you or someone else is in danger of harm, the study team is required to report that information to the proper authorities.
- The questions could make you sad or upset. Answering questions about your mood and cigarette craving may increase the chances of smoking.
- There may be some physical or emotional discomfort caused by the distress tolerance tasks. You are allowed to end these tasks whenever you like.
- The drug test and drug use history could indicate that you have used an illegal drug. Research funded by the National Institutes of Health protects participants' privacy by limiting the disclosure of this kind of information.
- The MRI scan is considered minor risk because no harmful radiation is involved. The strong magnetic field is dangerous to people with metallic implants, shrapnel, and/or pacemakers. It is important that you answer all screening questions honestly. The MRI is loud and you will

be provided hearing protection. There is a risk of experiencing claustrophobia (fear of closed spaces). If this occurs, you can speak with the MRI technician. If you are experiencing discomfort, you can quit the MRI scan at any time.

- The MRI scan may reveal a brain abnormality. If so, we will ask a neuroradiologist to look at the scan and if s/he determines that medical follow-up is recommended, we will inform you and recommend that you follow-up with your healthcare provider, who might suggest a diagnostic or clinical MRI be scheduled. If you decide to follow this recommendation, you and your insurance provider will be responsible for the cost of the clinical MRI and any medical care associated with the findings. This is a research MRI scan and it is not a substitute for medical testing, it will not provide reliable information about any health issue.
- We ask you to stop smoking and vaping for at least 12 hours before 1 study visit. This can cause symptoms of nicotine withdrawal, such as craving, difficulty concentrating, and bad mood.
- Due to unknown risks and potential harm to the unborn fetus, sexually active women of childbearing potential must use a reliable method of birth control while participating in this study. Reliable methods of birth control are: abstinence (not having sex), oral contraceptives, OrthoEvra patch, NuvaRing, intrauterine devices (IUD), Nexplanon implant, DepoProvera, tubal ligation, or vasectomy of the partner (with confirmed negative sperm counts) in a monogamous relationship (same partner). An acceptable, although less reliable, method involves the careful use of condoms and spermicidal foam or gel and/or a diaphragm with spermicide with Plan B used for any noticed condom or diaphragm failures. We encourage you to discuss this issue further with your physicians if you have any questions.
- There are some risks associated with the saliva genetic testing. A federal law, called the Genetic Information Nondiscrimination Act (GINA), generally makes it illegal for health insurance companies, group health plans, and most employers to discriminate against you based on your genetic information. This law will protect you in the following ways:
  - Health insurance companies and group health plans may not request your genetic information that we get from this research.
  - Health insurance companies and group health plans may not use your genetic information that we get from this research when making decisions regarding your eligibility or premiums.
  - Employers with 15 or more employees may not use your genetic information that we get from this research when making a decision to hire, promote, or fire you or when setting the terms of your employment.
- Be aware that this new federal law does not protect you against genetic discrimination by companies that sell life insurance, disability insurance, or long-term care insurance, nor does it protect you against genetic discrimination by all employers.

There also may be other risks that we cannot predict. You should tell the research staff about all the medications, vitamins and supplements you take and any medical conditions you have. This may help avoid side effects, interactions and other risks.

ARE THERE BENEFITS TO TAKING PART IN THE STUDY?

You are not expected to receive any direct benefit from taking part in this research study. We hope the information learned from this study will benefit other people in the future.

WHAT OTHER CHOICES ARE THERE?

This is not a treatment study. Your alternative is to not participate in this study.

WHAT ARE THE COSTS?

All study costs, including any study medications and procedures related directly to the study, will be paid for by the study. Costs for your regular medical care, which are not related to this study, will be your own responsibility.

WILL YOUR RESEARCH RECORDS BE CONFIDENTIAL?

The results of this research study may be presented at scientific or medical meetings or published in scientific journals. Your identity and/or your personal health information will not be disclosed unless it is authorized by you, required by law, or necessary to protect the safety of yourself or others. There is always some risk that even de-identified information might be re-identified.

Participant information may be provided to Federal and other regulatory agencies as required. The Food and Drug Administration (FDA), for example, may inspect research records and learn your identity if this study falls within its jurisdiction.

This research, including the results of the urine drug screen, is covered by a Certificate of Confidentiality from the National Institutes of Health. The researchers with this Certificate may not disclose or use information, documents, or biospecimens that may identify you in any federal, state, or local civil, criminal, administrative, legislative, or other action, suit, or proceeding, or be used as evidence, for example, if there is a court subpoena, unless you have consented for this use. Information, documents, or biospecimens protected by this Certificate cannot be disclosed to anyone else who is not connected with the research except, if there is a federal, state, or local law that requires disclosure (such as to report child abuse or communicable diseases but not for federal, state, or local civil, criminal, administrative, legislative, or other proceedings, see below); if you have consented to the disclosure, including for your medical treatment; or if it is used for other scientific research, as allowed by federal regulations protecting research subjects.

WILL YOU BE PAID FOR PARTICIPATING?

You will not receive money for the phone screen or the first hour of the screening session today. If you do not qualify for the study, you will not receive money.

If you qualify for the study, we will give you $100 for completing each study visit. This is to thank you for your time. You can earn up to $32 bonus based on your performance of the computer tasks. The total compensation is up to $332. We will give this to you as a check at the

end of your last study visit. If you change your mind and decide not to be in the study, or we decide you do not qualify for the study after the first hour of your visit, you will be paid $20/hour for the time you participated.

To receive payment, you must provide your social security number, name and address so that we can comply with IRS (Internal Revenue Service) reporting requirements. When payments are reported to the IRS we do not let them know what the payment is for, only that you have been paid. If you do not wish to provide this information you can still take part in this study but you will not be paid.

WHO IS SPONSORING THIS STUDY?

This study is being sponsored by the National Institutes of Health. The sponsor is providing money or other support to Wake Forest University Health Sciences to help conduct this study. The researchers do not, however, hold a direct financial interest in the sponsor or the research.

WHAT HAPPENS IF YOU EXPERIENCE AN INJURY OR ILLNESS AS A RESULT OF PARTICIPATING IN THIS STUDY?

Should you experience a physical injury or illness as a direct result of your participation in this study, Wake Forest University School of Medicine maintains limited research insurance coverage for the usual and customary medical fees for reasonable and necessary treatment of such injuries or illnesses. To the extent research insurance coverage is available under this policy the reasonable costs of these necessary medical services will be paid, up to a maximum of $25,000. Wake Forest University Baptist Medical Center holds the insurance policy for this coverage. It provides a maximum of $25,000 coverage for each claim and is limited to a total of $250,000 for all claims in any one year. The Wake Forest University School of Medicine, and the North Carolina Baptist Hospitals, Incorporated do not assume responsibility to pay for these medical services or to provide any other compensation for such injury or illness. Additional information may be obtained from the Medical Center's Director of Risk and Insurance Management, at [redacted].

If you are injured, the insurer may require information such as your name, social security number, and date of birth in order to pay for your care. This is because the insurer is required by law to report any payments made to cover the care of any persons who are members of a government insurance plan to the Department of Health and Human Services.

You do not give up any legal rights as a research participant by signing this consent form. For more information on medical treatment for research related injuries or to report a study related illness, adverse event, or injury you should call Merideth Addicott at [redacted].

WHAT ABOUT MY HEALTH INFORMATION?

In this research study, any new information we collect from you about your health or behaviors is considered Protected Health Information. The information we will collect for this research study includes**:** your contact information, your demographic information, your mental health

history, your pregnancy status, your responses to questionnaires and behavioral tasks, images of your brain, visual acuity, mood and daily hassles, tobacco and other drug use, urine nicotine and nicotine metabolites, and data from the saliva sample.

We will make every effort to keep your Protected Health Information private. We will store records of your Protected Health Information in a cabinet in a locked office or on a password protected computer.

Your personal health information and information that identifies you ("your health information") may be given to others during and after the study. This is for reasons such as to carry out the study, to determine the results of the study, to make sure the study is being done correctly, to provide required reports and to get approval for new products.

Some of the people, agencies and businesses that may receive and use your health information are the research sponsor; representatives of the sponsor assisting with the research; investigators at other sites who are assisting with the research; central laboratories, reading centers or analysis centers; the Institutional Review Board; representatives of Wake Forest University Health Sciences and North Carolina Baptist Hospital; representatives from government agencies such as the Food and Drug Administration (FDA) or the Office of Human Research Protections (OHRP), the Department of Health and Human Services (DHHS) and similar agencies in other countries.

Some of these people, agencies and businesses may further disclose your health information. If disclosed by them, your health information may no longer be covered by federal or state privacy regulations. Your health information may be disclosed if required by law. Your health information may be used to create information that does not directly identify you. This information may be used by other researchers. You will not be directly identified in any publication or presentation that may result from this study unless there are photographs or recorded media which are identifiable.

Monitors, auditors, IRB or other regulatory agencies will be granted direct access to the participant's original medical record for verification of clinical trial procedures or data, without violating confidentiality of the participant and to the extent permitted by other applicable laws.

If required by law or court order, we might also have to share your Protected Health Information with a judge, law enforcement officer, government agencies, or others. If your Protected Health Information is shared with any of these groups it may no longer be protected by federal or state privacy rules.

Any Protected Health Information collected from you in this study that is maintained in the research records will be kept for at least six years after the study is finished. At that time any research information will either be destroyed or it will be de-identified.

You can tell Dr. Addicott that you want to take away your permission to use and share your Protected Health Information at any time by sending a letter to this address:

Merideth Addicott

However, if you take away permission to use your Protected Health Information you will not be able to be in the study any longer. We will stop collecting any more information about you, but any information we have already collected can still be used for the purposes of the research study.

By signing this form you give us permission to use your Protected Health Information for this study.

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

WHAT ARE MY RIGHTS AS A RESEARCH STUDY PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part or you may leave the study at any time. Refusing to participate or leaving the study will not result in any penalty or loss of benefits to which you are entitled. If you decide to stop participating in the study we encourage you to talk to the investigators or study staff first to learn about any potential health or safety consequences. The investigators also have the right to stop your participation in the study at any time. This could be because you failed to follow instructions, or because the entire study has been stopped. Information that identifies you may be removed from the data or specimens that are collected as part of this study and could be used for future research or shared with others without additional consent.

You will be given any new information we become aware of that would affect your willingness to continue to participate in the study.

WHOM DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or in the event of a research-related injury, contact the study investigator, Merideth Addicott at [redacted].

The Institutional Review Board (IRB) is a group of people who review the research to protect your rights. If you have a question about your rights as a research participant, or you would like to discuss problems or concerns, have questions or want to offer input, or you want to obtain additional information, you should contact the Chairman of the IRB at [redacted] or the Research Subject Advocate at [redacted].

You will be given a copy of this signed consent form.

SIGNATURES

I agree to take part in this study. I authorize the use and disclosure of my health information as described in this consent and authorization form. If I have not already received a copy of the Privacy Notice, I may request one or one will be made available to me. I have had a chance to ask questions about being in this study and have those questions answered. By signing this consent and authorization form, I am not releasing or agreeing to release the investigator, the sponsor, the institution or its agents from liability for negligence.

Subject Name (Printed):_____

Subject Signature: _____ Date: _____Time:_____ am pm

Person Obtaining Consent (Printed):_____

Person Obtaining Consent:_____ Date:_____ Time:_____ am pm

You may participate in this study without giving a saliva sample.

My de-identified neuroimaging data collected in this study may be used in future research.

___ YES ___ NO

I agree to provide a saliva sample to be stored and used in future research.

___ YES ___ NO

_____ _____

Your name (please print) Your signature