

**DOCUMENTATION**

**of**

**SESSION PROCEDURES**

**in**

**MIDUS 3**

**Neuroscience Project (P5)**

University of Wisconsin ♦ Institute on Aging  
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# INTRODUCTION

This document provides an overview of the Neuroscience Project's (P5) MIDUS 3 data collection protocol and the measures collected during the in-person sessions. Partial variable names have been provided where appropriate. The following documentation is referenced throughout:

- M3\_P5\_DOCUMENTATION\_OF\_BEHAVIORAL\_COGNITIVE\_20260206
- M3\_P5\_DOCUMENTATION\_OF\_BRAIN\_MEASURES\_20260206
- M3\_P5\_DOCUMENTATION\_OF\_CANTAB\_20260206
- M3\_P5\_DOCUMENTATION\_OF\_PSYCHOPHYSIOLOGY\_20260206
- M3\_P5\_DOCUMENTATION\_OF\_SCALES\_20260206
- M3\_P5\_RESTRICTED\_ACCESS\_20260106
- M3\_P5\_VARIABLE\_NAMES\_20260206

For a description about each document, see the *M3\_P5\_README\_20260206*.

The Neuroscience Project's psychophysiology sessions typically began late morning (between 11:30 a.m. and 12:00 p.m.), after completion of the Biomarker Project's (P4) protocol at the UW Hospital (Madison, WI) and ended early evening (between 5:00 and 5:30 p.m.). MRI scans typically began the following day between 8:00 a.m. and 10:00 a.m. at the Waisman Brain Imaging laboratory on the UW-Madison campus. Whenever possible, all the following measures were collected in the order listed below. Experimenters could exercise discretion to alter a visit's sequence of tasks to accommodate participant comfort and capability.

If data could not be provided, the appropriate missing data value was listed. Missing data codes result from data not collected, technical difficulties, or inability of the participant to complete the task.

## COVID-19

Data collection was halted after March 2020 due to the COVID-19 pandemic. Data collection resumed October 2020, before vaccines were widely available, with new COVID risk-mitigation protocols in place. Variables C5PDATE\_YR and C5PDATE\_MO can be used to determine if a participant completed our protocol before or during the COVID-19 pandemic. New COVID protocols included a temperature check and screening questions before data collection started, the use of medical-grade face masks, application of disposable facial sensors (participants would briefly remove their masks for this application), the use of a portable air purifier running in our data collection rooms and extensive sanitation procedures. To increase air flow, we utilized separate rooms for sensor application, data collection, and cognitive testing/questionnaires when able.

# Neuroscience Project (P5) Outline of Procedures

## PSYCHOPHYSIOLOGY DAY:

### 1. Questionnaires completed before the Psychophysiology Emotional Response Task

*For more information see: [M3\\_P5\\_DOCUMENTATION\\_OF\\_SCALES\\_20260206](#)*

- a. State-Trait Anxiety Inventory – State Form (STAI-X1), TIME 1 [C5SS1...]
- b. Positive Affect Negative Affect Schedule-Now (PANAS-Now), TIME 1 [C5SP1...]

### 2. Hearing Test [C5O...]:

*For more information see: [M3\\_P5\\_DOCUMENTATION\\_OF\\_PSYCHOPHYSIOLOGY\\_20260206](#)*

### 3. Psychophysiology Emotional Response Task + physiological data

*For more information on facial electromyography (EMG) or heart rate variability (HRV) measures see:*

*[M3\\_P5\\_DOCUMENTATION\\_OF\\_PSYCHOPHYSIOLOGY\\_20260206](#)*

*For more information on the Psychophysiology Emotional Response Task see:*

*[M3\\_P5\\_DOCUMENTATION\\_OF\\_BEHAVIORAL\\_COGNITIVE\\_20260206](#)*

- a. Physio check – test physiological signals after sensor placement
- b. Baseline – five-minute recording while participant is sitting still, eyes open
  - i. Heart rate variability (HRV) via electrocardiogram [C5V1...]
- c. Psychophysiology Emotional Response Task Practice Trials
- d. Psychophysiology Emotional Response Task Trials – during which we simultaneously acquired:

*Raw behavioral data from the Psychophysiology Emotional Response Task and the physiological data acquired during the task including facial electromyography (EMG), respiration, electrodermal activity (EDA), and electrocardiogram (ECG) data are available upon request, for more information see:*

*[M3\\_P5\\_RESTRICTED\\_ACCESS\\_20260106](#)*

- i. Task response times [C5R...] and accuracy [C5A...]
- ii. Facial electromyography (EMG)
  1. Corrugator EMG [C5C...]
  2. Eyeblink startle reflex EMG (EBR) [C5B...]
  3. Zygomaticus EMG [C5L...]

### 4. Questionnaires completed after the Psychophysiology Emotional Response Task

*For more information see: [M3\\_P5\\_DOCUMENTATION\\_OF\\_SCALES\\_20260206](#)*

- a. State-Trait Anxiety Inventory – State Form (STAI-X1), TIME 2 [C5SS2...]
- b. Positive Affect Negative Affect Schedule-Now (PANAS-Now), TIME 2 [C5SP2...]

### 5. Behavioral/Cognitive tasks completed after the Psychophysiology Emotional Response Task

*For more information on behavioral/cognitive tasks see:*

*[M3\\_P5\\_DOCUMENTATION\\_OF\\_BEHAVIORAL\\_COGNITIVE\\_20260206](#)*

- a. Cube and Paper Task [C5D...]
- b. Cambridge Neuropsychological Test Automated Battery (CANTAB)

*For more information see: [M3\\_P5\\_DOCUMENTATION\\_OF\\_CANTAB\\_20260206](#)*

- i. Motor Screening Test (MOT) [C5NM...]
- ii. Affective Go/No-go (AGN) [C5NA...]
- iii. Intra-Extra Dimensional Set Shift (IED) [C5NI...]
- iv. Attention Switching Task (AST) [C5NT...]
- v. Emotion Recognition Task (ERT) [C5NE...]

- vi. Information Sampling Test (IST) [C5NS...]
  - vii. (Cambridge Gambling Task (CGT) [C5NG...])
    - 1. If subject scheduled for MRI scan, then CGT completed after the scan. If no scan scheduled and time permitted, CGT completed after IST.
  - c. **Free Recall Task [C5F...]**
  - d. **Picture Ratings Task** (never completed before Free Recall) [C5T...]
6. **Other questionnaires** (not completed at a specific time)
- For more information see: M3 P5 DOCUMENTATION OF SCALES 20260206*
- a. State-Trait Anxiety Inventory – Trait Form (STAI-X2) [C5SST...]
  - b. Positive Affect Negative Affect Schedule-General (PANAS-Gen) [C5SPG...]
  - c. Dispositional Positive Emotion Scale (DPES) [C5SDP...]
  - d. Emotion Regulation Questionnaire (ERQ) [C5SE...]
  - e. Interpersonal Reactivity Index (IRI) [C5SIR...]

## NEUROIMAGING DAY:

### 1. Questionnaires completed before MRI scans

*For more information see: M3 P5 DOCUMENTATION OF SCALES 20260206*

- a. State-Trait Anxiety Inventory – State Form (STAI-X1), TIME 3 [C5SS3...]
- b. Positive Affect Negative Affect Schedule-Now (PANAS-Now), TIME 3 [C5SP3...]

### 2. MRI

*Raw data for all MRI scans are available upon request, for more information see:*

M3 P5 RESTRICTED ACCESS 20260106

*For more information on the extracted structural and diffusion-weighted MRI measures see:*

M3 P5 DOCUMENTATION OF BRAIN MEASURES 20260206

- a. Structural T1-weighted scan [C5E...]
- b. Functional MRI

*In addition to the raw fMRI data, the raw behavioral data from the fMRI Emotional Response Task and the psychophysiology data acquired during the fMRI scans including respiration, electrodermal activity and photoplethysmography data are available upon request, for more detail see:*

M3 P5 RESTRICTED ACCESS 20260106

- i. Task-based fMRI (fMRI Emotional Response Task)
- ii. Resting state fMRI

- 1. Heart rate variability (HRV) via photoplethysmography [C5V2...]

*For more information on resting state HRV measures see:*

M3 P5 DOCUMENTATION OF PSYCHOPHYSIOLOGY 20260206

- c. Diffusion-weighted scan [C5W...]
- d. Resting perfusion (arterial spin labeling; ASL) scan
- e. Structural T2-weighted scans (added part way through data collection)

### 3. Questionnaires completed after MRI scans

*For more information see: M3 P5 DOCUMENTATION OF SCALES 20260206*

- a. State-Trait Anxiety Inventory – State Form (STAI-X1), TIME 4 [C5SS4...]
- b. Positive Affect Negative Affect Schedule-Now (PANAS-Now), TIME 4 [C5SP4...]

### 4. Behavioral tasks completed after the scan

- a. **CANTAB:** Cambridge Gambling Task (CGT) [C5NG...]

*For more information see: M3 P5 DOCUMENTATION OF CANTAB 20260206*

b. Any behavioral tasks or questionnaires not completed during psychophysiology day

c. **fMRI Picture Ratings Task**

*For more information on fMRI Picture Ratings Task data see:  
M3 P5 RESTRICTED ACCESS 20260106*

5. **3 days after the fMRI scan**

a. **Face Ratings Task**

*For more information on Face Ratings data see: M3 P5 RESTRICTED ACCESS 20260106*

i. Memory and likeability ratings of faces seen during the fMRI task completed online or mailed paper packet completed 3 days after fMRI scan.