UK Biobank

Touch-screen Lights Pattern Memory Test

Version 1.0

http://www.ukbiobank.ac.uk/

29th February 2012

biobank uk

Improving the health of future generations

This manual details the procedure for the touch-screen part of the Lights Pattern Memory test at an Assessment Centre of the UK Biobank

Contents

1 Introduction

1.1: This manual details the procedure for the touch-screen part of the Lights Pattern Memory test at an Assessment Centre of the UK Biobank. This test takes place at the 2nd 'station' of the Assessment Centre visit, as listed in Table 1.

Table 1: Sequence of assessment visit

	Visit station	Assessments undertaken
1	Reception	• Welcome & registration • Generating a USB key for Participants
2	Touch screen Section	• Consent • Touch screen questionnaire • Hearing Test • Cognitive function tests
3	Interview & blood pressure	• Interviewer questionnaire • Blood pressure measurement • Measurement of arterial stiffness
4	Eye measurements	• Visual acuity • Refractometry • Intraocular pressure • Optical Coherence Tomography
5	Physical measurements	• Height (Standing and Sitting) • Hip & Waist measurement • Weight and Bio-impedance measurement • Hand-grip strength • Ultrasound Bone Densitometry • Spirometry (Lung function test)
6	Cardio-respiratory fitness	• Exercise/fitness ECG test
7	Sample collection	• Blood samples collected • Urine sample collected • Saliva sample collected
8	Web-based diet questionnaire	• Dietary assessment

1.2: Throughout this document, the term 'Participant' signifies a study participant who is taking part in the Assessment Centre process, regardless of whether they eventually give or withhold consent to take part in the UK Biobank study.

1.3: The collection of data from assessment visits uses a direct data entry system of the Assessment Centre Environment (ACE).

1.4: At the start of their visit, each participant is issued with a USB key at the Reception station. This contains the participant unique identifier, name, date of birth and gender. As the participant progresses between stations, the USB key acts as an identifying token. The USB key is encrypted so can only be read by assessment centre computers. None of the participant's test data is transferred to the USB key. At the end of the assessment visit all identifying data on the USB key is removed.

2   Staff

This procedure is performed by the Receptionist or any staff member who has received suitable training and has been granted the relevant module permissions. These staff can include: Study Interviewer, Duty Manager, Phlebotomist, Laboratory Technician or Measurement Technician. Two members of staff are always present to oversee the touch screen and web diet questionnaire areas. The Assessment Centre Manager oversees that all staff work in accordance with this procedure.

3   Lights Pattern Memory test

The Lights Pattern Memory test was performed as part of the touch-screen questionnaire in the pilot phase of recruitment into the study. (The distribution of the responses to the test was highly skewed indicating that many participants found the test too easy to complete successfully). This test was therefore omitted during the main phase of recruitment and is only available for a subset of participants (~3,700).

This Lights Pattern Memory test aims to test short-term visual memory by showing the participant a series of pictures of houses, which have some windows lit. The participant then has to indicate which windows were lit after a 10-second delay.

The screen stated:

 "In the next section, you will be shown a picture of a small house, like the one below. Some of the lights are switched on. Remember which windows are lit up".

Press "Next" when you are ready to start.

An illustration of a small house is shown, with 4 windows, 2 of which are lit in a random pattern. After 10 seconds, the same house is shown, but with no lights on.

The instruction then reads:

"Please touch the windows that had the lights on. When you have pressed all the windows that you need to, press "Next"

The participant selects as many windows as they wish. Each window that is touched is changed to being lit (or toggled back to being unlit again) and the computer records the number of correct matches.

The test is repeated using a picture of a medium-size house, with 9 windows, of which 5 are lit (using a fixed pattern so that pattern is same for all participants). After 10 seconds, the same house is shown, but with no lights on.

The instruction then reads:

"Please touch the windows that had the lights on. When you have pressed all the windows that you need to, press 'Next'"

Finally, a picture of a larger-size house is shown, with 16 windows, of which 8 are lit (using a fixed pattern so that pattern is same for all participants). After 10 seconds, the same house is shown, but with no lights on.

The instruction then reads:

"Please touch the windows that had the lights on. When you have pressed all the windows that you need to, press 'Next'"
.
The participant then goes on to complete the Pairs Matching test.

4 Data Collection

The following data is stored:

- The number of columns that were displayed in each round of the test (2,3,4)
- The number of rows that were displayed in each round of the test (2,3,4)
- The pattern of lights
- The pattern of lights as remembered by the participant
- The time taken to complete the test