*Supplementary Information*

*Table A - Episodic memory measures of cognitive function used in blueberry studies*

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| Task | Description | Cognitive process tested |
| Rey's Auditory Verbal Learning Task (RAVLT) | A list of set words is presented which the participants are asked to recall. This is repeated 5 times using the same list of words (List A). A second and different list of words is presented (list B), and the participants are required to recall as many words as they remember from this second list. Straight after, the participants are asked to recall as many words as possible from the original list (list A). After about 25 minutes, the participants are asked once more to recall the words from the original list and lastly presented with a word recognition task where they were presented with words from both lists A and B in addition to random words and asked to identify only the words from list A.  | Immediate and delayed episodic memory, proactive and retroactive interference, word acquisition, total learning, and word recognition.  |
| Object Location/Recognition Task | Participants are shown a set of pictures for a set amount of time. After a break, the participants are shown a new set of pictures, alongside some of the original pictures, and they have to indicate the pictures, which they think are new and which pictures are from the original set. In some Object recognition task versions, the participants are shown the original pictures again but with some of the pictures moved around and the participants have indicate which picture they think has not been moved.  | Spatial memory |
| California Verbal Learning Test, 2nd ed. (CVLT-II) | Participants are shown a list of semantic words and asked to recall them 5 times. A second interference list is presented, which the participants have to recall before the initial list is tested again. After 20 mins the participants are shown a list of words containing words from both the original and interference list and the participants are asked to distinguish and respond to words from the original list.  | Episodic memory |
| Virtual version of the Morris Water Maze (vMWM) | An adaptation of a physical task used with rodents. Participants are placed in a virtual pool and required to identify and memorise the location of a hidden platform under different conditions. | Spatial cognition |
| International shopping list task  | The participant must try and remember as many words as possible from a list of words that they hear. | Verbal learning and delayed recall |
| Verbal paired associate learning test | The aim of this task is to learn pair of semantically linkedwords that have different and unrelated meanings. | Memory |
| Corsi block tapping task | The participant will be shown a collection of blocks on the screen. The blocks will be highlighted in a specific sequence and the participant will be required to repeat that sequence.  | Visual memory span |
| Hopkins Verbal Learning Test | The participant is read a list of 12 words, and then is required to memorise and recall as many words as they can remember. This is repeated 3 times. Afterwards the participant is read a list of 24 words which includes words from the first list and also distractor words, and has to indicate by responding ‘yes or ‘no’ whether that word appeared in the word list or not.  | Verbal learning and long-term memory |

*Table B – Working memory measures of cognitive function used in blueberry studies*

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| Task | Description | Cognitive process tested |
| Visual N-back | Participants are presented with a sequence of stimuli and they have to respond when the current stimulus is the same as the stimulus n-back earlier in the sequence. | Visuospatial Working memory |
| 1-back and 2-back memory tasks | The aim for the 1-back is to decide as quickly as possible whether a card they are presented with is the same as the card presented previously. The aim of the 2-back is the same, but the participants must respond to whether it is the same as the one shown two cards before. | Visual Working memory |
| Sternberg memory scanning task  | This was a modified version of the original task which involves participants scanning through a list of items held in their short-term memory as quickly as possible. More specifically participants need to memorise 1-6 digits in a specific order. At each trial, a random digit is generated and at the end of the task a digit is randomly shown, and participants need to respond as to whether the final digit belongs to the original set of digits.  | Selective attention |
| Serial Subtraction tasks (3’s and 7’s) | Requires the participants to subtract 3 or 7 from a number for a specific amount of time | Working memory |

*Table C – Executive function measures of cognitive function used in blueberry studies*

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| Task | Description | Cognitive process tested |
| Go-nogo | Participants have to respond as quickly as possible every time a target appears (go), but must withhold the response when a non-target display appears (no-go)  | Attention, Response Inhibition |
| Stroop task | Participants respond as quickly as possible to words dependent on the colour in which they are displayed, whilst ignoring the actual word itself, e.g. the participants would respond to the word Blue displayed in a red colour by pressing the corresponding red key.  | Attention, Processing speed, Response interference.  |
| Modified Flanker Task | Five arrows are presented and the aim is to identify whether the middle arrow is congruent i.e. <<<<< or >>>>>) or incongruent (i.e. <<><< or >><>>) using the arrows key on the computer keyboard. | Attention, Processing speed, Response interference. |
| Modified Attention Network Task (MANT) | In this task arrow symbols are shown to the participant and the participants have to respond according to the direction of the arrow ‘<’ or ‘>’. The level of cognitive demand can be increase by adding visual load, e.g. changing the amount of arrows presented at each trial, varying the stimulus duration, orientation of arrows and adding a distraction by playing background noise, more specifically the noise of a school playground during one of the trials. | Attention, Processing speed, Visual Load, Auditory distraction, Response interference |
| Picture Matching Task (PMT) | Pairs of pictures were presented to the participants which were either ‘Physically Different and Name Different (PDND)’, ‘Physically Different and Name Same (PDNS)’, or ‘Physically Same and Name Same (PSNS)’. There were two versions of the task, and the aim is to respond as to whether they were the same or not (physical Match Task), and whether they had the same name or not (Name Match Task). | Levels of processing and attention |
| Task-switching test (TST) | The TST looks at how performance is affected when participants are having to change between doing two different tasks. It consists of a display of a circle with a bold line intersecting through the middle. A random number will appear (in a clockwise position) and the participants are tasked respond to this number depending on whether it is below or above the bold line. If it is above the line, participants will respond as to whether the number is odd or even, when it is below the line participants have to respond as to whether it is greater than or less than 5.  | Attention, Cognitive Flexibility |
| Groton maze timed chase test | The aim is to follow a sequence of tiles that will move randomly across a grid. | Speed of visual processing |
| Groton maze learning test | The participant is presented with a grid of tiles and must follow a certain pathway from start to finish by touching the tile which is next to their current tile location. | Executive function and delayed recall |
| Identiﬁcation task | The participant is presented with a playing card, and the aim is to respond as quickly as possible when the playing card is turned over and to respond as to whether the card is red or not. | Attention |
| Dysexecutive Questionnaire (DEX) | A questionnaire used to assess cognitive performance in everyday life activities. The questionnaire comprises of 20 questions, which the participants has to respond to using a 5-point likert scale. The DEX explores 4 different areas of executive functioning (emotional, personality, behavioural and cognitive) (Gerstorf et al, 2008).  | Executive function |
| Trail making test A & B | In the trail making test A, the participants have to connect a series of 25 dots in numerical order as quickly as possible. Then in the trail-making test B the participants have to repeat this task but by connecting the dots in numerical and alphabetical order simultaneously e.g. 1-A, 2-B. 3-C. | Executive function and psychomotor speed |
| Controlled Oral Word Production | For this the participant is presented with a letter and are tasked to say all the words they can think of beginning with that letter. The difficulty is increased by presenting letters which have less frequent words beginning with that particular letter.  | Verbal functioning |

*Table D – Psychomotor measures of cognitive function used in blueberry studies*

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| Task | Description | Cognitive process tested |
| Detection task | The participant is presented with a playing card, and the aim is to respond as quickly as possible when the playing card is turned over. | Psychomotor function |
| Simple Reaction Time | Participants respond as rapidly as possible to a given stimulus over a number of trials. | Psychomotor function.  |
| Dual Task Gait Test  | Participants navigate a predetermined narrow path whilst reciting the days of the week in a backwards fashion.  | Psychomotor function, Executive function. |