

SUPPLEMENTARY MATERIALS

WAND: A multi-modal dataset integrating advanced MRI, MEG, and TMS for multi-scale brain analysis

Carolyn B McNabb¹, Ian D Driver¹, Vanessa Hyde¹, Garin Hughes¹, Hannah L Chandler¹, Hannah Thomas¹, Christopher Allen², Eirini Messaritaki¹, Carl J Hodgetts^{1,3}, Craig Hedge⁴, Maria Engel¹, Sophie F Standen¹, Emma L Morgan¹, Elena Stylianopoulou¹, Svetla Manolova¹, Lucie Reed¹, Mark Drakesmith¹, Michael Germuska⁵, Alexander D Shaw⁶, Lars Mueller⁷, Holly Rossiter¹, Christopher W Davies-Jenkins^{8,9}, Tom Lancaster¹⁰, C John Evans¹, David Owen¹, Gavin Perry¹, Slawomir Kusmia^{1,11}, Emily Lambe¹, Adam M Partridge^{1,12}, Allison Cooper¹, Peter Hobden¹, Hanzhang Lu^{8,9}, Kim S Graham^{1,13}, Andrew D Lawrence^{1,13}, Richard G Wise^{1,14,15}, James T R Walters¹⁶, Petroc Sumner¹, Krish D Singh¹, and Derek K Jones¹

¹Cardiff University Brain Research Imaging Centre, School of Psychology, Cardiff University, Cardiff, United Kingdom,

²Department of Psychology, Durham University, Durham, United Kingdom,

³Department of Psychology, Royal Holloway, University of London, Egham, United Kingdom,

⁴School of Psychology, Aston University, Birmingham, United Kingdom,

⁵ Department of Radiology, University of California Davis Medical Center, Sacramento, California, USA,

⁶Washington Singer Laboratories, University of Exeter, Exeter, United Kingdom,

⁷Leeds Institute of Cardiovascular and Metabolic Medicine, University of Leeds, Leeds, United Kingdom,

⁸The Russell H. Morgan Department of Radiology and Radiological Science, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA,

⁹F.M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, Maryland, USA,

¹⁰Department of Psychology, University of Bath, Bath, United Kingdom,

¹¹IBM Polska Sp. z o. o., Department of Content Design, Cracow, Poland

¹²University of Sheffield, Research Services, New Spring House, 231 Glossop Road, Sheffield, S10 2GW, UK

¹³School of Philosophy, Psychology and Language Sciences, Dugald Stewart Building, University of Edinburgh, 3 Charles Street, Edinburgh, EH8 9AD, UK

¹⁴Department of Neurosciences, Imaging, and Clinical Sciences, 'G. D'Annunzio' University of Chieti-Pescara, Chieti, Italy,

¹⁵Institute for Advanced Biomedical Technologies, 'G. D'Annunzio' University of Chieti-Pescara, Chieti, Italy

¹⁶School of Medicine, Centre for Neuropsychiatric Genetics and Genomics, Cardiff University, Cardiff, United Kingdom

TABLE OF CONTENTS

Table S1. Reasons for exclusion from the Welsh Advanced Neuroimaging Database	3
Table S2. Imaging data acquired as part of the Welsh Advanced Neuroimaging Database. Session numbers and data type are provided to assist researchers in locating the data in the public repository and have been organised using the Brain Imaging Data Structure (BIDS). Abbreviations: MPRAGE - Magnetization Prepared Rapid Gradient Echo; BOLD – blood oxygen level dependent; EPI – echo planar imaging; pCASL – Pseudo-continuous arterial spin labelling; semi-LASER - semi-localization by adiabatic selective refocusing; MEGA-PRESS - Meshcher-Garwood Point RESolved Spectroscopy; TRUST - T2 relaxation under spin tagging.....	5
Table S3. Summary of MRI parameters for each acquisition sequence. Abbreviations: TR – repetition time; TE – echo time; FOV – field of view; TI – inversion time; A>>P – anterior to posterior; MPRAGE - Magnetization Prepared Rapid Gradient Echo; BOLD – blood oxygen level dependent; EPI – echo planar imaging; SPGR - spoiled gradient-recalled echo sequence; SPGR-IR - inversion recovery-prepped spoiled gradient-recalled echo sequence; SSFP - steady-state free precession; pCASL – Pseudo-continuous arterial spin labelling; semi-LASER - semi-localization by adiabatic selective refocusing; MEGA-PRESS - Meshcher-Garwood Point RESolved Spectroscopy; TRUST - T2 relaxation under spin tagging; MP2RAGE - magnetization prepared 2 rapid gradient echoes.	7
Table S4. Cognitive tasks and questionnaires included in the Welsh Advanced Neuroimaging Database. Abbreviations: UPPS-P - Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Urgency	12
Table S5. Summary statistics for questionnaire data included in the Welsh Advanced Neuroimaging Database.	13
Table S6. Summary statistics for cognitive tasks included in the Welsh Advanced Neuroimaging Database.	16

Table S1. Reasons for exclusion from the Welsh Advanced Neuroimaging Database

Reason for exclusion	Number of people excluded
depression	71
time	51
not MRI compatible	49
did not specify	48
medication	45
migraines	32
tattoo location	32
psychiatric diagnosis	23
concussion	22
location	21
anxiety disorder	16
diabetes	11
claustrophobia	10
copper IUD	8
pregnancy/breastfeeding	7
age	6
neurological - did not specify	6
regular smoker	6
ADHD	5
pain killers	5
stroke	5
rheumatoid arthritis	4
PTSD	3
titanium plates	3
bipolar	2
brain tumour	2
drug use	2
haemorrhage	2
HIV	2
Interest	2
metal in body	2
multiple sclerosis	2
traumatic brain injury	2
ADHD and Anxiety Disorder	1
aneurysm	1
anorexia	1
Asthma	1
autism	1
cancer	1
carpal tunnel syndrome	1

charcot marie tooth disease	1
chiara I malformation	1
epilepsy	1
family history	1
hernia mesh	1
high blood pressure	1
hydrocephalus	1
illness	1
long-term illness	1
narcolepsy	1
other	1
pacemaker	1
panic disorder	1
parkinson's disease	1
restless leg syndrome	1
sterilisation	1
tourettes	1

Table S2. Imaging data acquired as part of the Welsh Advanced Neuroimaging Database. Session numbers and data type are provided to assist researchers in locating the data in the public repository and have been organised using the Brain Imaging Data Structure (BIDS). Abbreviations: MPRAGE - Magnetization Prepared Rapid Gradient Echo; BOLD – blood oxygen level dependent; EPI – echo planar imaging; pCASL – Pseudo-continuous arterial spin labelling; semi-LASER - semi-localization by adiabatic selective refocusing; MEGA-PRESS - Meshcher-Garwood Point RESolved Spectroscopy; TRUST - T2 relaxation under spin tagging.

Session	Data type	Acquisition sequence	Functional task	File naming pattern
Magnetoencephalography (MEG; ses-01)	meg		Rest	*task-resting
	meg		Visual Gamma	*task-visual
	meg		Simon Task	*task-simon
	meg		40Hz auditory stimulus / finger abduction task	*task-auditorymotor
	meg		Mismatch negativity	*task-mmn
Diffusion and quantitative 3T MRI (300 mT/m; ses-02)	anat	T1-weighted structural image (MPRAGE)		*T1w
	dwi	Multi-shell high angular resolution diffusion imaging		*acq-CHARMED_dir*_dwi
	dwi	Diffusion-weighted imaging with variable diffusion time		*acq-AxCatiber_dir*_dwi
	anat	Quantitative magnetisation transfer imaging		*QMT
	anat	Spoiled and unspoiled gradient echoes		*VFA
3T functional and perfusion MRI (ses-03)	anat	T1-weighted structural image (MPRAGE)		*T1w
	anat	T2-weighted turbo spin echo		*rec-nlgradcorr_T2w
	func	Blood oxygen level dependent echo planar imaging (BOLD EPI)	Category localiser task	*task-categorylocaliser_run*_bold
	func	BOLD EPI	Reversal learning task	*task-reversallearning_bold
	func	BOLD EPI	Rest	*task-rest_bold
	perf	Pseudo-continuous arterial spin labelling (pCASL)		*acq-PCASL_cbf
	perf	T2-relaxation-under-spin-tagging (TRUST) – venous blood oxygenation		*acq-TRUST_cbf
	perf	T1 inversion recovery – haemoglobin		*acq-InvRec_cbf
7T Magnetic resonance spectroscopy (MRS; ses-04)	anat	T1-weighted structural image (MPRAGE)		*T1w
	mrs	semi-LASER – left sensorimotor (metabolite and water reference)		*acq-slaser_voi-smleft*
	mrs	semi-LASER – anterior cingulate (metabolite and water reference)		*acq-slaser_voi-anteriorcingulate*
	mrs	semi-LASER – occipital (metabolite and water reference)		*acq-slaser_voi-occipital*
	mrs	semi-LASER – right auditory (metabolite and water reference)		*acq-slaser_voi-rightauditory*
	anat	T1-weighted structural image (MPRAGE)		*T1w

3T Magnetic resonance spectroscopy (MRS; ses-05)	mrs	MEGA-PRESS – left sensorimotor (metabolite and water reference)		*acq-mega_voi-smleft*
	mrs	MEGA-PRESS – anterior cingulate (metabolite and water reference)		*acq-mega_voi-anteriorcingulate*
	mrs	MEGA-PRESS – occipital (metabolite and water reference)		*acq-mega_voi-occipital*
	mrs	MEGA-PRESS – right auditory (metabolite and water reference)		*acq-mega_voi-rightauditory*
7T structural/functional MRI (ses-06)	anat	T1-weighted structural image (MP2RAGE)		*MP2RAGE
	anat	T2-weighted turbo spin echo (slices orthogonal to hippocampal long axis)		*T2w
	func	BOLD EPI	Rest	*task-rest_bold
	anat	Multi-echo gradient echo (mGRE)		*MEGRE
3T metabolic MRI (ses-07)	perf	TRUST – venous blood oxygenation		*TRUST_cbf
	perf	T1 inversion recovery – haemoglobin		*acq-InvRec_cbf
	perf	Dual-excitation pCASL	Breath-hold	*acq-PCASL-task-breathhold_cbf
	anat	Single-echo gradient echo (GRE)		*T2starw
	func	Spin echo EPI	Breath-hold	*task-breathhold_bold
	perf	Dual-excitation pCASL	Rest	*acq-PCASL-task-rest_cbf
	perf	Dual-excitation pCASL	Breath-hold + visual stimulation (checkerboard)	*acq-PCASL-task-breathholdchecker_cbf
Transcranial magnetic stimulation (ses-08)	tms		Short and Long Interval Intra Cortical Inhibition	*SiCIdatam

Table S3. Summary of MRI parameters for each acquisition sequence. Abbreviations: TR – repetition time; TE – echo time; FOV – field of view; TI – inversion time; A>>P – anterior to posterior; MPRAGE - Magnetization Prepared Rapid Gradient Echo; BOLD – blood oxygen level dependent; EPI – echo planar imaging; SPGR - spoiled gradient-recalled echo sequence; SPGR-IR - inversion recovery-prepped spoiled gradient-recalled echo sequence; SSFP - steady-state free precession; pCASL – Pseudo-continuous arterial spin labelling; semi-LASER - semi-localization by adiabatic selective refocusing; MEGA-PRESS - Meshcher-Garwood Point RESolved Spectroscopy; TRUST - T2 relaxation under spin tagging; MP2RAGE - magnetization prepared 2 rapid gradient echoes.

Session	Acquisition	Parameters
Diffusion and quantitative 3T MRI (300 mT/m; ses-02)	T1-weighted anatomical	TR: 2300 ms TE: 2 ms Flip Angle: 9° FOV: 256 x 256 x 192 mm ³ Voxel Size: 1 x 1 x 1 mm ³ TI: 857 ms Phase-encoding: A>>P
	Multi-shell diffusion-weighted MRI	TR: 3000 ms TE: 59 ms FOV: 220 x 220 x 132 mm ³ Voxel Size: 2 x 2 x 2 mm ³ Phase-encoding: A>>P and P>>A Diffusion gradient: $\delta = 7$ ms, $\Delta = 24$ ms b-values: b=200, 500, 1200, 2400, 4000, 6000 s/mm ²)
	Diffusion-weighted imaging with variable diffusion time	TR: 3900 ms TE: 80 ms FOV: 220 x 220 x 132 mm ³ Voxel Size: 2 x 2 x 2 mm ³ Phase-encoding: A>>P and P>>A Diffusion gradient: $\delta = 7$ ms Δ and b-values: Multiple ($\Delta = 18, 30, 42, 55$ ms with various b-value pairs up to b = 7750 and 15500 s/mm ²)
	Spoiled and unspoiled gradient echo	SPGR: TR 4 ms, TE 1.9 ms, 8 flip angles (3 - 18°) SPGRIR: TR 4 ms, TE 1.9 ms, flip angle 5° SSFP: TR 4.54 ms, TE 2.27 ms, 8 flip angles (10 - 60°) FOV: 220 x 220 x 179 mm ³ Voxel Size: 1.72 x 1.72 x 1.72 mm ³ Phase-encoding: A>>P
	Quantitative magnetization transfer (qMT)	TR: 55 ms TE: 2.1 ms FOV: 220 x 220 x 179 mm ³ Voxel Size: 1.72 x 1.72 x 1.72 mm ³ MT-weighted images: 11 combinations of flip angle/offset Phase-encoding: A>>P Turbo factor: 4
3T functional and perfusion MRI (ses-03)	T1-weighted anatomical	TR: 2250 ms TE: 3.06 ms Flip Angle: 9°

FOV: 256 x 288 x 176 mm³
 Voxel Size: 1 x 1 x 1 mm³
 TI: 850 ms
 Phase-encoding: A>>P

T2-weighted anatomical	TR: 8000 ms TE: 82 ms Echo train length: 17 Echo spacing: 8.22 ms Flip Angle: 120° FOV: 256 x 256 mm ² Voxel Size: 1 x 1 mm ² Slices: 88 (2 mm thick, contiguous)
BOLD fMRI (task-based and resting-state)	TR: 2000 ms TE: 30 ms Flip Angle: 70° FOV: 192 x 192 x 160 mm ³ Voxel Size: 2.0 x 2.0 x 2.0 mm ³ Phase-encoding: A>>P Multiband Acceleration Factor: 4
Pseudocontinuous arterial spin labelling (pCASL)	TR: 4600 ms TE: 11 ms Post label delay: 2000 ms Tag duration: 1800 ms FOV: 320 x 320 mm ² Voxel Size: 3.4 x 3.4 x 5.0 mm ³ Slices: 22 (5 mm thick)
T2 Relaxation under Spin Tagging (TRUST)	TR: 3000 ms TE: 3.9 ms Effective echo times: 0, 40, 80, 160 ms FOV: 220 x 220 mm ² Voxel Size: 3.4 x 3.4 x 5.0 mm ³
T1 Inversion Recovery	TR and ΔTR: 150 ms TE: 22 ms Post label delay: 1800 ms Flip Angle: 90° FOV: 240 x 240 mm ² Voxel Size: 3.4 x 3.4 x 5.0 mm ³ Slices: 1 (3 mm thick)
Gradient Echo Field Maps	TR: 434 ms TE1: 4.92 ms TE2: 7.38 ms Flip Angle: 60° FOV: 96 x 96 mm ² Voxel Size: 2.0 x 2.0 x 6.0 mm ³
7T Magnetic resonance spectroscopy (MRS; ses-04)	B1 Inhomogeneity Map TR: 5000 ms TE1: 0.9 ms TE2: 1.55 ms Flip Angle1: 60° FOV: 200 x 200 x 200 mm ³ Voxel Size: 4.5 x 4.5 x 4.5 mm ³

Phase encoding direction: R>>L

	T1-weighted anatomical	TR: 2200 ms TE: 3.02 ms Flip Angle: 7° FOV: 224 x 224 x 157 mm ³ Voxel Size: 0.7 x 0.7 x 0.7 mm ³ TI: 1050 ms
	Metabolite and water reference data (semi-LASER)	TR: 5230 ms TE: 78 ms Voxel Size: Various VOIs (30 x 30 x 30 mm ³ , 25 x 30 x 40 mm ³) Frequency offset: 1.7 ppm for metabolites, 0 ppm for water Spectral width: 3000 Hz
3T Magnetic resonance spectroscopy (MRS; ses-05)	T1-weighted anatomical	TR: 2250 ms TE: 3.06 ms Flip Angle: 9° FOV: 256 x 288 x 176 mm ³ Voxel Size: 1 x 1 x 1 mm ³ TI: 850 ms
	GABA-edited MRS and water reference data (MEGA-PRESS)	TR: 2000 ms TE: 68 ms Voxel Size: Various VOIs (30 x 30 x 30 mm ³ , 25 x 30 x 40 mm ³) Frequency offset: 1.7 ppm for metabolites, 0 ppm for water Spectral width: 2000 Hz
7T structural/functional MRI (ses-06)	B1 Inhomogeneity Map	TR: 5000 ms TE1: 0.9 ms TE2: 1.55 ms Flip Angles: 60°, 8°, 3° FOV: 200 x 200 x 200 mm ³ Voxel Size: 4.5 x 4.5 x 4.5 mm ³ Phase-encoding: R>>L
	T1-weighted anatomical (MP2RAGE)	TR: 3500 ms TE: 2.64 ms Flip Angles: 5° (1st), 2° (2nd) FOV: 224 x 224 x 157 mm ³ Voxel Size: 0.7 x 0.7 x 0.7 mm ³ TI1: 725 ms TI2: 2150 ms Phase-encoding: A>>P
	T2-weighted anatomical	TR: 13000 ms TE: 75 ms Echo Spacing: 15.1 ms Flip Angle: 120° Echo Train Length: 9 FOV: 220 x 220 mm ² Voxel Size: 0.4 x 0.4 mm ² In-plane Interpolation: 0.2 x 0.2 mm ²

	Resting-state BOLD fMRI	TR: 1500 ms TE: 25 ms Flip Angle: 65° Echo Spacing: 0.72 ms FOV: 192 x 192 mm ² Voxel Size: 1.5 x 1.5 x 1.5 mm ³ Multiband Acceleration factor: 4 Phase Encoding: A>>P
	Spin Echo EPI for Distortion Correction	TR: 2000 ms TE: 45 ms Phase Encoding: A>>P and P>>A
	Multi-echo 3D Gradient Echo	TR: 39 ms Flip Angle: 11° Echo Times: 7 echoes, 5 to 35 ms (5 ms increments) FOV: 224 x 224 x 224 mm ³ Voxel Size: 0.67 x 0.67 x 0.67 mm ³ Slices: 192 Bandwidth: 290 Hz/px Undersampling: 2x2
3T metabolic MRI (ses-07)	TRUST (T2 Relaxation under Spin Tagging)	TR: 3000 ms TE: 3.9 ms Echo Times: 0, 40, 80, 160 ms FOV: 220 x 220 mm ² Voxel Size: 3.4 x 3.4 x 5 mm ³ TI: 1020 ms Phase Partial Fourier: 6/8
	T1 Inversion Recovery	TR: 150 ms TE: 22 ms Post Label Delay: 1800 ms Flip Angle: 90° FOV: 240 x 240 mm ² Slice Thickness: 3 mm
	3D Phase Contrast	TR: 40.65 ms TE: 5.6 ms Flip Angle: 10° FOV: 180 x 240 x 78 mm ³ Voxel Size: 0.47 x 0.47 x 1.30 mm ³ Venc: 75 cm/s
	Dual excitation (DEXI) pCASL	TR: 4.4 s TE1: 10 ms TE2: 30 ms FOV: 3.4 x 3.4 mm ² Slice Thickness: 6 mm (33% gap) Task: Breath-hold and resting-state
	M0 scans for CBF quantification	TR: 6000 ms TE: 10 ms Flip Angle: 90° Phase Encoding: A>>P and P>>A (matched with DEXI dataset)

Spin-echo EPI TR: 2500 ms
TE: 90 ms
Echo Spacing: 0.55 ms
Voxel Size: 3.4 x 3.4 x 6.5 mm³
Slices: 15
Task: Breath-hold

Single-echo 3D Gradient Echo TR: 20 ms
TE: 14 ms
Flip Angle: 15°
Voxel Size: 0.8 x 0.8 x 1.0 mm³
FOV: 230 x 230 x 144 mm³
Slices: 144
Bandwidth: 220 Hz/px

Table S4. Cognitive tasks and questionnaires included in the Welsh Advanced Neuroimaging Database. Abbreviations: UPPS-P - Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Urgency

Cognitive tasks	Number of Participants	Name of file
Choice reaction-time tasks	174	TwoChoice.tsv; FourChoice.tsv
Logical memory task	178	cog_tasks.tsv
Vocabulary test	178	cog_tasks.tsv
Matrix reasoning (WASI-II)	178	cog_tasks.tsv
Verbal fluency test	178	cog_tasks.tsv
Balloon analogue risk task	173	BART.tsv
Participant demographics		
Demographic interview	178	participants.tsv
Neuropsychiatric interview		
Mini International Neuropsychiatric Interview	178	MINI.tsv
Trait questionnaires		
Short UPPS-P Impulsive Behaviour Scale	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Generalized Anxiety Disorder 7-item scale	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Anxiety Depression Distress Inventory	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Global Physical Activity Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Emotion Regulation Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Big Five Inventory-2 short form	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Schizotypal Personality Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Single Item Need to Belong Scale	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Survey of Autobiographical Memory	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Navigational Strategies Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Mind Wandering Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Fazio Laterality Inventory	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Hospital Anxiety and Depression Scale	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Visual Vertigo analogue Scale	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Adult Autism Spectrum Quotient – short version	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Visual discomfort images	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Adolescent/Adult Sensory Profile	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv
Migraine Screening Questionnaire	160	questionnaires.tsv; WAND_SUBSCALE_SCORES.tsv

Table S5. Summary statistics for questionnaire data included in the Welsh Advanced Neuroimaging Database.

Trait questionnaire	Subscale	Mean	Std	Min	Max	Cronbach's Alpha
Anxiety Depression Distress Inventory	General distress	15.69	6.23	9	39	0.92
	Positive affect	27.98	6.55	11	45	0.89
	Somatic anxiety	11.2	3.02	9	24	0.75
Adult Autism Spectrum Quotient	Social skills	13.59	4.44	7	28	0.85
	Routine	8.84	2.26	4	14	0.58
	Switching	9.07	2.26	4	16	0.61
	Imagination	15.77	3.59	8	26	0.67
	Numbers and patterns	10.74	3.13	5	20	0.69
Adolescent/Adult Sensory Profile	Low registration	30.81	6.69	17	48	0.75
	Sensation seeking	49.29	6.26	33	67	0.58
	Sensory sensitivity	34.67	7.64	20	58	0.72
	Sensory avoiding	33.8	7.82	19	60	0.77
Big Five Inventory	Extraversion	3.37	0.8	1.17	5	0.76
	Agreeableness	4.05	0.72	1.33	5	0.78
	Conscientiousness	3.71	0.73	2	5	0.74
	Negative emotionality	2.37	0.91	1	4.83	0.85
	Openness	3.79	0.71	1.67	5	0.71
Emotion Regulation Questionnaire	Reappraisal	4.99	1.08	2.17	7	0.87
	Suppression	3.58	1.26	1	6.75	0.75
Fazio Laterality Inventory	Total	79.59	17.27	2	100	0.91
Generalized Anxiety Disorder 7-item scale	Total	2.94	3.02	0	16	0.81
Global Physical Activity Questionnaire	Total metabolic equivalents	4123.42	3964.66	0	20880	-
Hospital Anxiety and Depression Scale	Anxiety	5.22	3.66	0	15	0.82
	Depression	2.67	2.72	0	15	0.75

Migraine Screening Questionnaire	Total	0.82	0.98	0	5	0.52
Mind Wandering Questionnaire	Total	3.61	0.91	1.4	6	0.82
Navigational Strategies Questionnaire	Map total	4.96	2.73	0	12	-
	Non map total	5.24	2.5	0	12	-
	Map preference	-0.28	4.96	-11	12	-
Survey of Autobiographical Memory	Episodic	3.3	0.76	1.12	5	0.82
	Factual	3.28	0.75	1.33	5	0.7
	Spatial	3.68	0.75	1.67	5	0.75
	Future	3.78	0.68	1	5	0.78
Single Item Need to Belong Scale	Total	3.38	1.18	1	5	-
Schizotypal Personality Questionnaire	Total	12.43	10.39	0	53	0.93
	Ideas reference	1.15	1.78	0	8	0.78
	Social anxiety	2.61	2.43	0	8	0.83
	Odd beliefs	0.3	0.81	0	6	0.67
	Perceptual	0.74	1.34	0	9	0.71
	Odd behaviour	1.09	1.73	0	6	0.83
	No friends	1.82	2.18	0	9	0.81
	Odd speech	2.1	2.05	0	9	0.74
	Affect	1.39	1.7	0	8	0.74
Suspiciousness	1.23	1.72	0	8	0.77	
Short UPPS-P Impulsive Behaviour Scale	Negative urgency	2.02	0.62	1	4	0.73
	Lack of perseverance	1.76	0.44	1	3.25	0.66
	Lack of premeditation	1.74	0.47	1	3	0.77
	Sensation seeking	2.76	0.67	1.25	4	0.66
	Positive Urgency	1.64	0.51	1	3.75	0.75
Visual discomfort images	Low	0.76	0.95	0	5.9	0.81
	High	1.72	1.76	0	8	0.93

Visual Vertigo analogue Scale	Severity	6.11	8.98	0	47.78	0.82
--------------------------------------	----------	------	------	---	-------	------

Note: N=160 except for the GPAQ, where N=146. Some participants gave ambiguous responses to questions asking in HH:MM how much time was spent on physical activity per day (e.g. "7"). Data for participants which were judged to be ambiguous were not included in these statistics. We recommend that those interested in the GPAQ re-evaluate the raw data and inclusions/exclusions.

Table S6. Summary statistics for cognitive tasks included in the Welsh Advanced Neuroimaging Database.

Task	Subscale	Mean	Std	Min	Max	Split-half reliability
Two choice RT	Accuracy	94.7	7.2	10.5	99.8	0.98
	Mean RT	445	56	330	743	0.99
Four choice RT	Accuracy	94.6	3.4	83.3	100.0	0.89
	Mean RT	381	73	265	922	1.00
BART	Mean adjusted pumps	33.7	14.1	9.6	76.9	0.97
Logical memory	Story B immediate recall	15.0	4.0	2.0	23.0	-
	Story C immediate recall	12.3	3.5	4.0	22.0	-
	Story B delayed recall	12.7	4.4	0.0	22.0	-
	Story C delayed recall	11.1	3.7	1.0	22.0	-
	Story B delayed recognition	12.9	2.1	0.0	22.0	-
	Story C delayed recognition	12.3	2.0	0.0	15.0	-
WASI II	Vocabulary (raw)	39.8	5.1	27.0	52.0	-
	Matrix Reasoning (raw)	19.7	3.5	4.0	26.0	-
Verbal fluency	Phonemic (f words)	16.1	4.8	5.0	31.0	-
	Semantic (animals)	24.8	6.5	10.0	43.0	-
	Social (friends' names)	22.5	6.6	9.0	43.0	-
	Spatial (bedroom objects)	23.0	5.6	9.0	39.0	-

Note. Split-half reliability coefficients are calculated from odd and even trials with Spearman-Brown correction applied