The English Longitudinal Study of Ageing ELSA

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The English Longitudinal Study of Ageing ELSA

- **PI:** Prof Andrew Steptoe, UCL
- **Design:** bi-annual face-to-face interviews and nurse visits
- **Survey Domains**: We have 15 modules
- **Linkage to**: HES, NHS Central Register (mortality and cancer incidence), National Insurance contributions, Benefits incl. state pensions and tax credits , Tax records, savings, private pensions

Year	Modality	Sample	Refreshment
Wave 1 (2002/3)	CAPI	12,099	
Wave 2 (2004/5)	CAPI + Nurse visit	9,432 (7,666)	
Wave 3 (2006/7)	CAPI	9,771	HSE 2001-4
Wave 4 (2008/9)	CAPI + Nurse visit	11,050 (8,218)	HSE 2006
Wave 5 (2010/11)	CAPI	10,274	
Wave 6 (2012/13)	CAPI + Nurse visit	10,437 (7,699)	HSE 2009-11
Wave 7 (2014/5)	CAPI	9,666	HSE 20011-12
Wave 8 (2016/17)	CAPI + Nurse visit (50%)	8,445 (3,525)	
Wave 9 (2018/19)	CAPI + Nurse visit (50%)	~7741 (2403)	HSE 2014-15

Wave 2 (2004/5)	Wave 4 (2008/9)	Wave 6 (2012/13)	Wave 8 (2016/17)	Wave 9 (2018/19)
Weight, height, waist	Weight, height, waist	Weight, height, waist	Weight (in main interview) Waist (nurse visit)	Weight (in main interview) Waist (nurse visit)
Grip, balance, chair rise, tandem stand, leg raise, timed walk	Grip, balance, chair rise, tandem stand, leg raise, timed walk	Grip, balance, chair rise, tandem stand, leg raise, timed walk	Grip Timed walk	Grip Timed walk
Blood pressure, lung function	Blood pressure, lung function	Blood pressure, lung function	Blood pressure	Blood pressure
Lipids, triglycerides, HbA1c, glucose	**Lipids, triglycerides, HbA1c, glucose**	**Lipids, triglycerides, HbA1c, glucose**	**Lipids, triglycerides** **HbA1c, glucose**	**Lipids, triglycerides** **HbA1c, glucose**
CRP, fibrinogen	**CRP, fibrinogen, white cell count**	**CRP, fibrinogen, white cell count**	**CRP, fibrinogen, white cell count**	**CRP, fibrinogen, white cell count**
Haemoglobin, ferritin	**Haemoglobin, ferritin**	**Haemoglobin, ferritin**	**Haemoglobin, ferritin**	**Haemoglobin, ferritin**
DNA	**(DNA)**	**(DNA)**	**(DNA)**	**(DNA)**
	IGF-1	**IGF-1, Vitamin D**	**IGF-1, Vitamin D**	**IGF-1, Vitamin D**
Apolipoprotein E **Cortisol from saliva** **N=645**		**Cortisol, DHEA, cortisone, melatonin testosterone, progesterone**	**PAXgene tubes**	**PAXgene tubes**
N = 7,666 (88%) Bloods = 6,231	N = 8,218 (86%) Bloods = 6,438	N = 7,699 (88%) Bloods = 6,180 **Hair = 5336**	N = 3,525 Bloods = 2,762	N = 3159 Bloods = TBC

Genetic Data

- GWAS was conducted on 7,597 ELSA participants (100% white ethnicity).

- After QC the analytical sample was 7,223 individuals and 1,374,524 genotyped SNPs

- PGS were built using PRSice and PLINK 1.9.

- PGSs was based on the directly genotyped data rather than imputed data.

Polygenic Scores

Personality types
- Extraversion
- Agreeableness, Openness to Experience and Conscientiousness
- Neuroticism

Psychopathology
- Alzheimer's disease
- Depressive Symptoms
- Anxiety Disorders (factor score)
- Insomnia Complaints
- Schizophrenia

Physical health and longevity
- Coronary Artery Disease
- Type II Diabetes
- General Cognition
- Rheumatoid Arthritis
- Myocardial Infarction
- Longevity
- Sleep Duration

Socio-economic traits
- Educational Attainment - 2 (EA2)
- Educational Attainment - 3 (EA3)
- Social Deprivation

Behavioural traits
- Number of cigarettes smoked per day
- Smoking initiation (ever/never)
- Daily Alcohol Intake

Biological outcomes
- Morning Plasma Cortisol

Reproductive behaviour
- Age at Menarche
- Age at Menopause
- Age at first birth – Female & Male
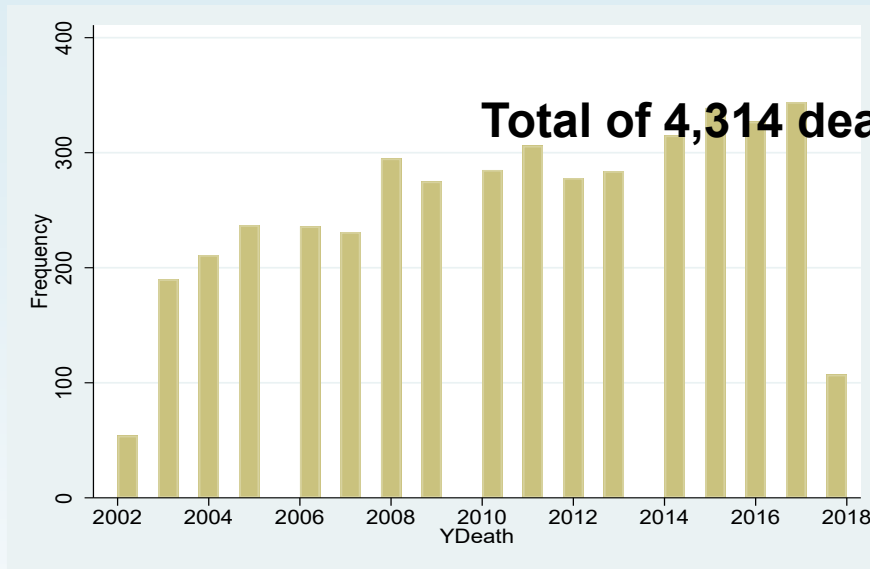- Number of children ever born (NEB) – Female & Male

Objective physical activity

- Wave 6 random sample of 499 invited to participate, 400 took part

- triaxial accelerometer (GeneActiv; Activinsights Ltd., Cambs, UK) non-dominant wrist for 8 consecutive 24-h days

- technical problems with 28 accelerometers 38 insufficient wear time

- loss of 4 sleep logs in transit

- Final sample size 330

Cognitive function

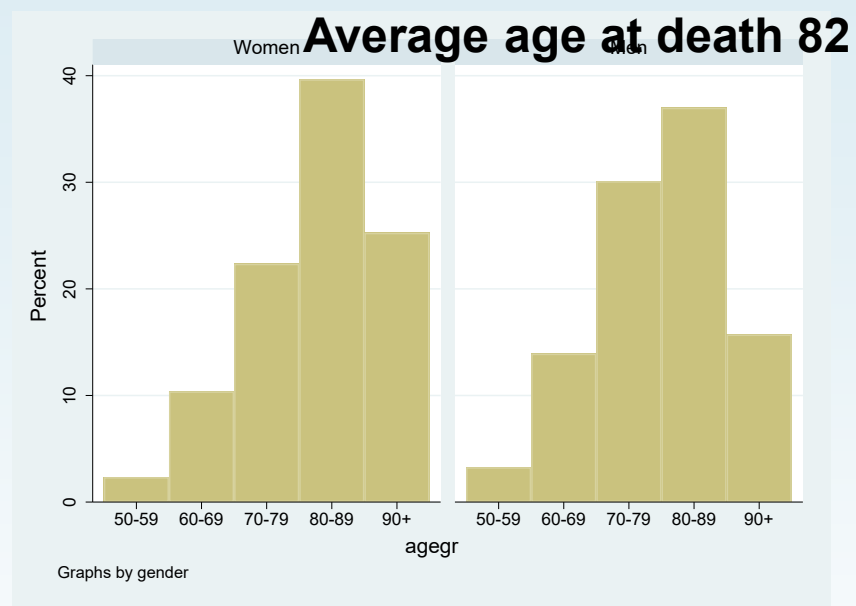|	W1	W2	W3	W4	W5	W6	W7	W8	W9
Self-rated memory	✔	✔	✔	✔			✔	✔	✔
Orientation in time	✔	✔	✔	✔	✔	✔	✔	✔	✔
Word-list learning (verbal learning and recall)	✔	✔	✔	✔	✔	✔	✔	✔	✔
Prospective memory	✔	✔	✔	✔	✔			✔	
Fluid intelligence (number series)						✔		✔	✔
Word-finding	✔	✔	✔	✔	✔		✔	✔	✔
Letter cancellation	✔	✔	✔	✔	✔				
Backwards counting							✔	✔	✔
Serial 7s							✔	✔	✔
Object naming							✔	✔	✔
Numerical ability	✔			✔		[✔]	[✔]	[✔]	
Literacy		✔			✔	[✔]	[✔]	[✔]	
Proxy interview IQCODE scale		✔	✔	✔	✔	✔	✔	✔	✔

HCAP protocol (2018)

- Mini mental state exam (MMSE)
- TICS
- Word list – immediate recall
- Retrieval fluency
- Letter cancellation
- Backwards counting
- 10/66 questions
- Word list – delayed recall
- Story memory – immediate

- Word list recognition
- Constructional praxis
- Story memory – delayed
- Logical memory – recognition
- Number series
- Raven's matrices
- Trail making
- Depressive symptoms
- Smell test

Mortality follow-up

Total of 4,314 deaths of core members

Mortality follow-up

Average age at death 82

Average age at death 79