

# Integrating the social and biomedical: the MRC National Survey of Health and Development

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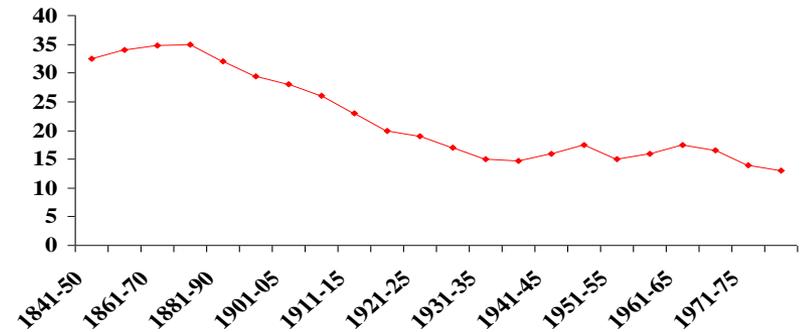
MRC Unit for Lifelong Health and Ageing



CLOSER KEW, April 11<sup>th</sup> 2013

# MRC National Survey of Health and Development

- **Maternity survey** of all mothers who had a baby in a week in March 1946 in England, Scotland or Wales. Interviewed by health visitors 8 weeks after birth
- **MRC National Survey of Health and Development** is a sample of 5362 babies from the maternity survey followed up 23 times with ~ 80% response rates
- **Social and biological** factors affecting:
  - Pregnancy & childbirth
  - Child health & development
  - Educational progress & life chances
  - Adult health and ageing



Dr James Douglas

# Maternity in Great Britain 1948 report

## “Need for better care and lower costs” (The Times)

- Medical and other confinement costs
- Maternity clothes
- Layette & equipment

## “Needless pain” (Observer) (only 8-52% given pain relief in childbirth)

## “Present day maternity services have concentrated on one important object – to make childbirth safe. Now they need to pay more attention to the mother’s feelings and her material needs.” (Daily Mirror)



	Professional & salaried	Black-coated wage earners	Manual workers	Agricultural workers
First	£58	£45	£36	£31
Subsequent	£46	£30	£23	£18

# Scientific aims of the 1946 birth cohort the first 60 years (1946-2006)

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1946	Birth	Decline in fertility and the cost of childbirth
1947-50	1-4y	Growth & health in relation to SES & care
1951-59	5-15	Physical & cognitive development in relation to SES & education. The 'waste of talent'
1960-76	16-35	Occupation, income, family formation in relation to education & SES. Early influences on respiratory health
1977-2006	36-60y	Age related change in biological function, functional capacity, morbidity & survival in relation to earlier life factors & lifetime SES

Wadsworth et al IJE 2006

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# 'Waste of talent' : focus on social inequalities

% at selective secondary school by test score & father's social class

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Test score at 11 years	Middle class		Manual working class	
	Upper	Lower	Upper	Lower
54 or less	40.1	17.0	10.2	7.9
55-60	80.3	65.9	49.8	51.6
61 and over	99.0	93.9	96.3	92.3

The Home and the School: 1964

# Summary of NSHD data 2-53 years

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## 19 DATA COLLECTIONS 2-31y

- Heights & weights at 2,4,6,7,11,15,20 26y
- Cognitive development assessed at 8,11,15y & educational achievement
- Diet: Breastfeeding , weaning, 24 hr recall at 2y
- Developmental milestones, physical co-ordination
- Behaviour & temperament
- Mortality, hospital admissions, reported health
- Marital, fertility histories
- Work histories
- Social & physical environment at all contacts
- Study of offspring children 4 & 8 y

## DATA COLLECTIONS SINCE 36y

- Blood pressure, lung function, body size, mental health at 36,43,53y
- Cognitive performance at 43 & 53 years
  - Verbal memory, search speed & concentration, general ability
- Physical performance at 53y
  - Grip strength, balance, chair rises
- Age at menopause 47-53,57y
- Blood samples at 53 y for DNA & cell lines, HbA1c, lipids
- Mortality & cancer registrations, hospital admissions, health
- Diet, lifestyle, life circumstances

# Summary of NSHD associations between adult health outcomes and childhood factors up to 53y

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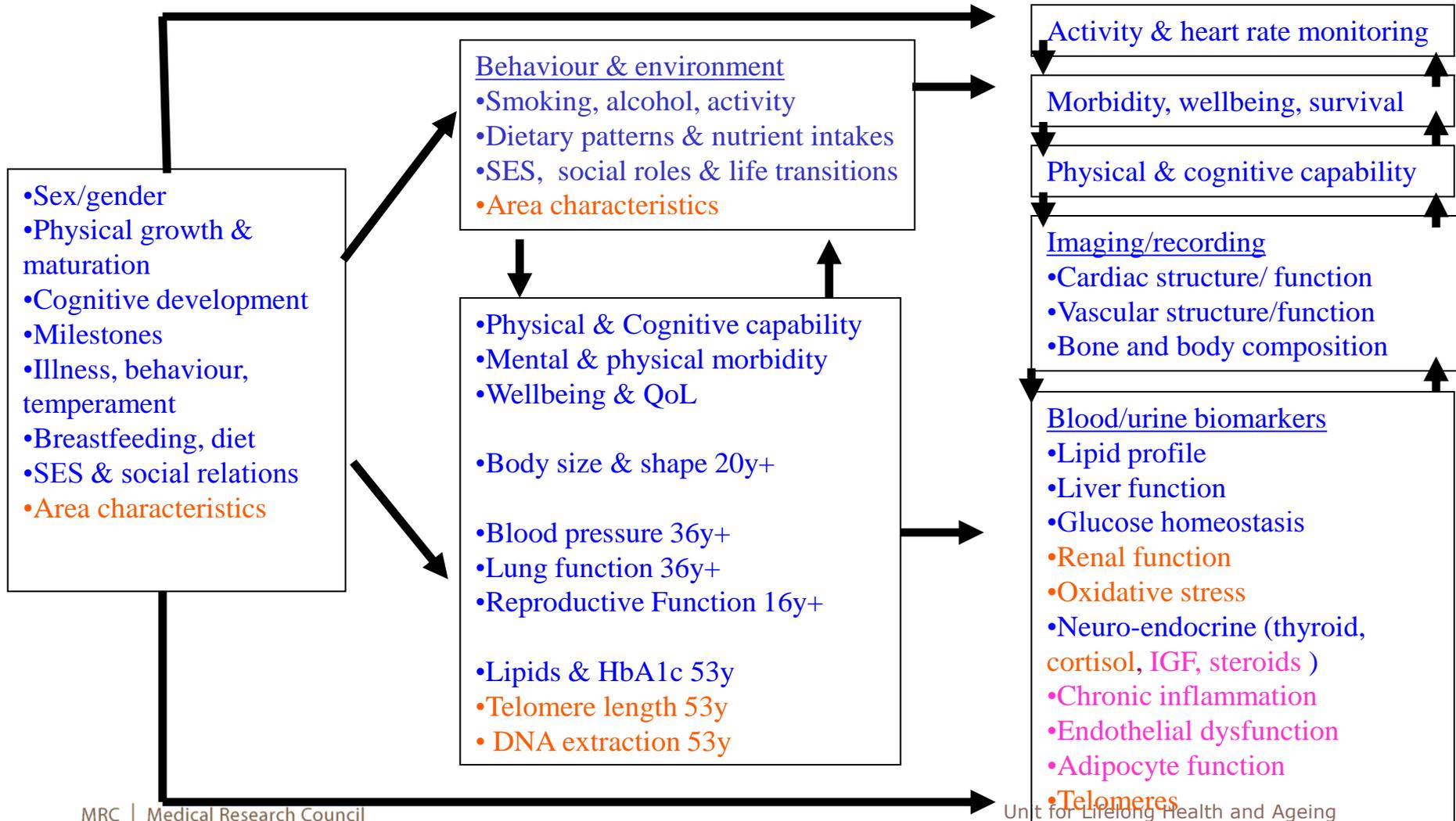
<u>Adult outcome</u>	Early SEP	Physical development	Cognitive development
Cardiovascular	Yes	Yes	?
Respiratory	Yes	Yes	Yes
Breast cancer	No	Yes	?
Mortality	Yes	Yes	Yes
WHR/BMI	Yes	Yes	Yes
Phys/cog function	Yes	Yes	Yes
Reproductive function	Yes	Yes	Yes
Mental health/wellbeing	Yes	Yes	Yes

# MRC National Survey of Health and Development Data and Scientific framework

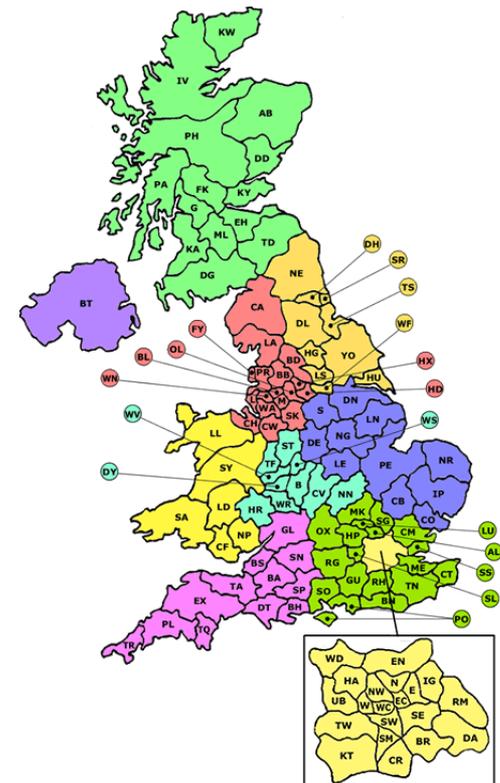
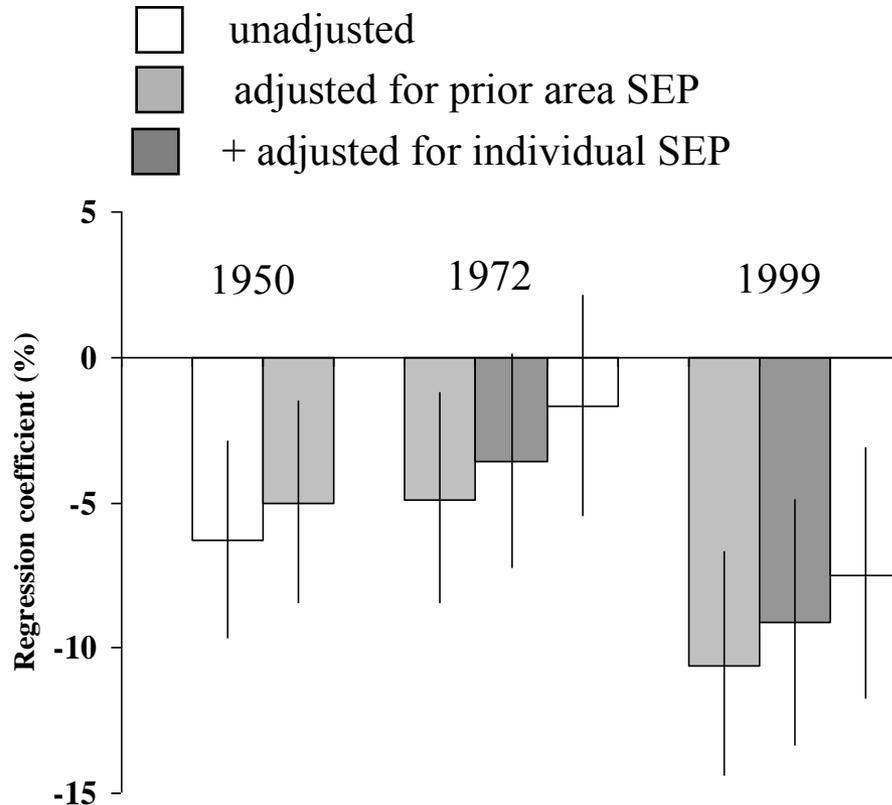
CHILD 0-16y

ADULT 16-53y

60-64y



# Area based characteristics and physical capability in the NSHD

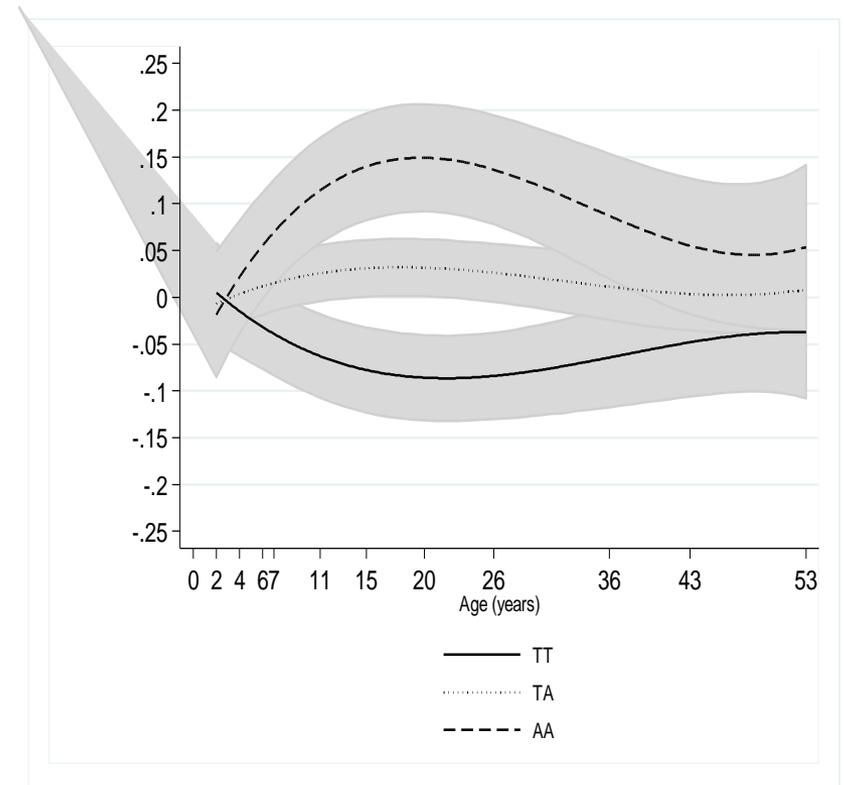
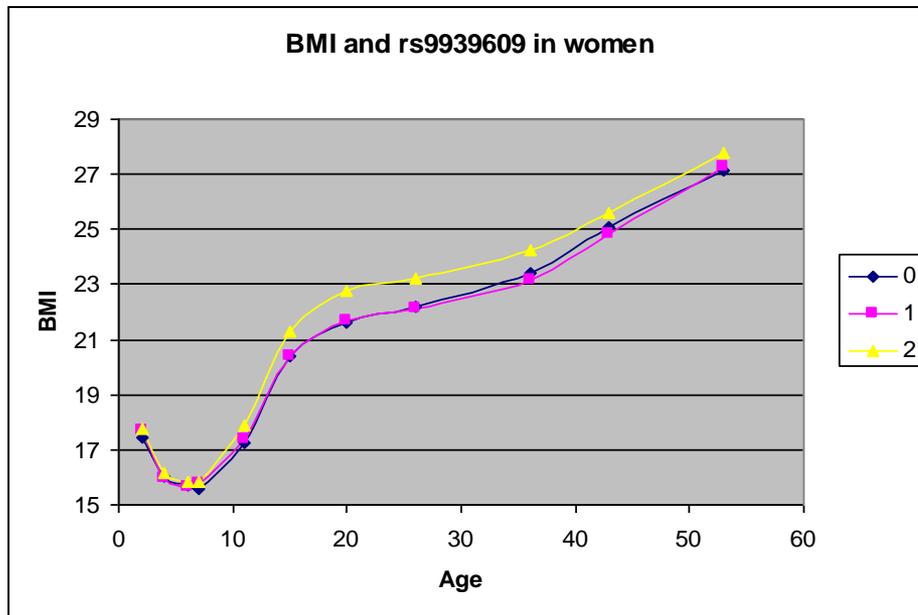


Strongest association with balance time

Murray et al AJE in press

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# FTO genotype and BMI over the life course



Hardy et al HMG 2010

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# HALCyon

## Healthy Ageing across the Life Course

([www.halcyon.ac.uk](http://www.halcyon.ac.uk), 2008-2012)

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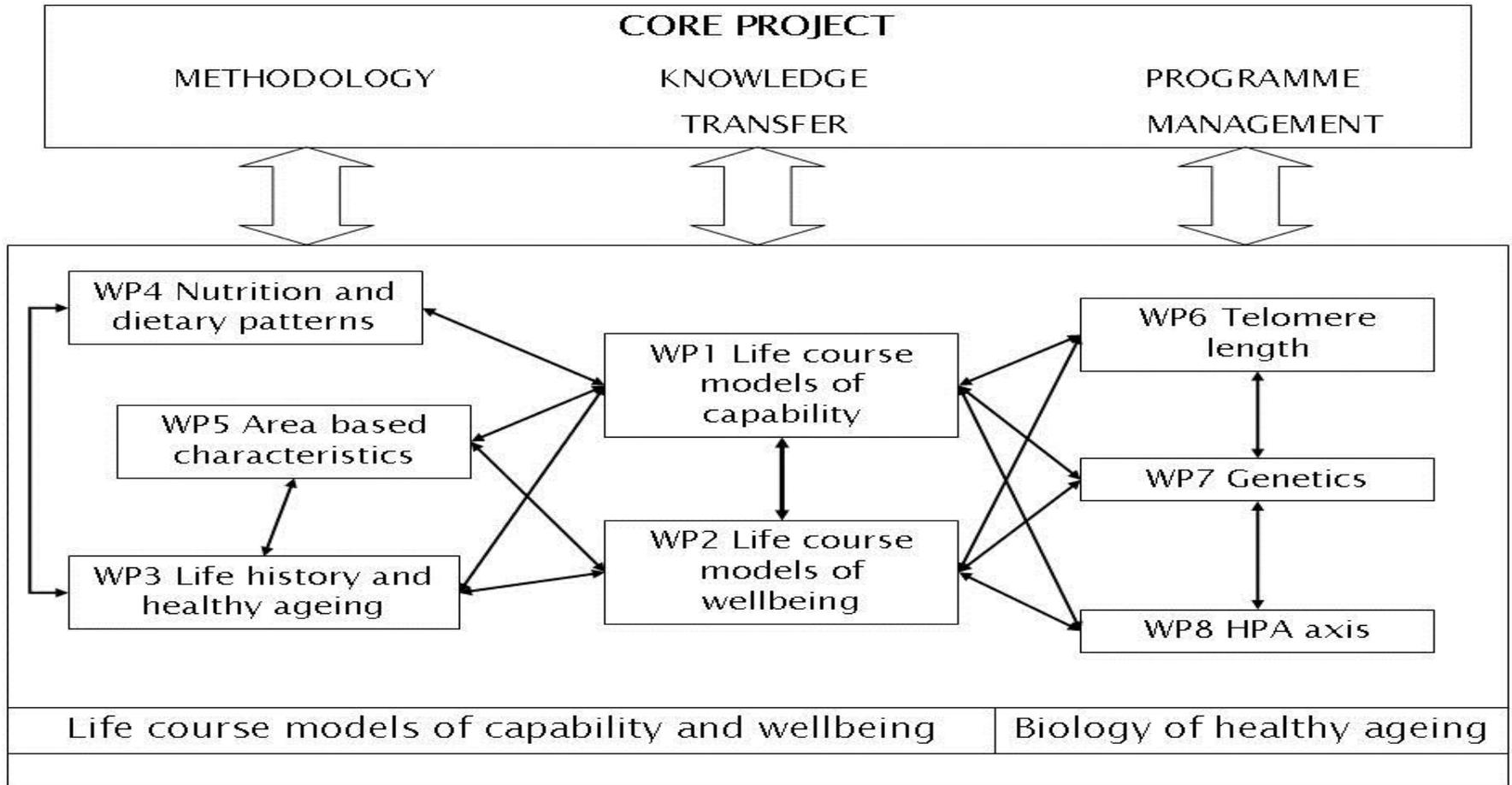
HALCyon is a collaborative research programme:

- 9 UK cohorts born 1921 to 1958
- Cohort investigators, methodologists and specialists in ageing and knowledge transfer
- To investigate how healthy ageing is influenced by factors operating across the whole of life.

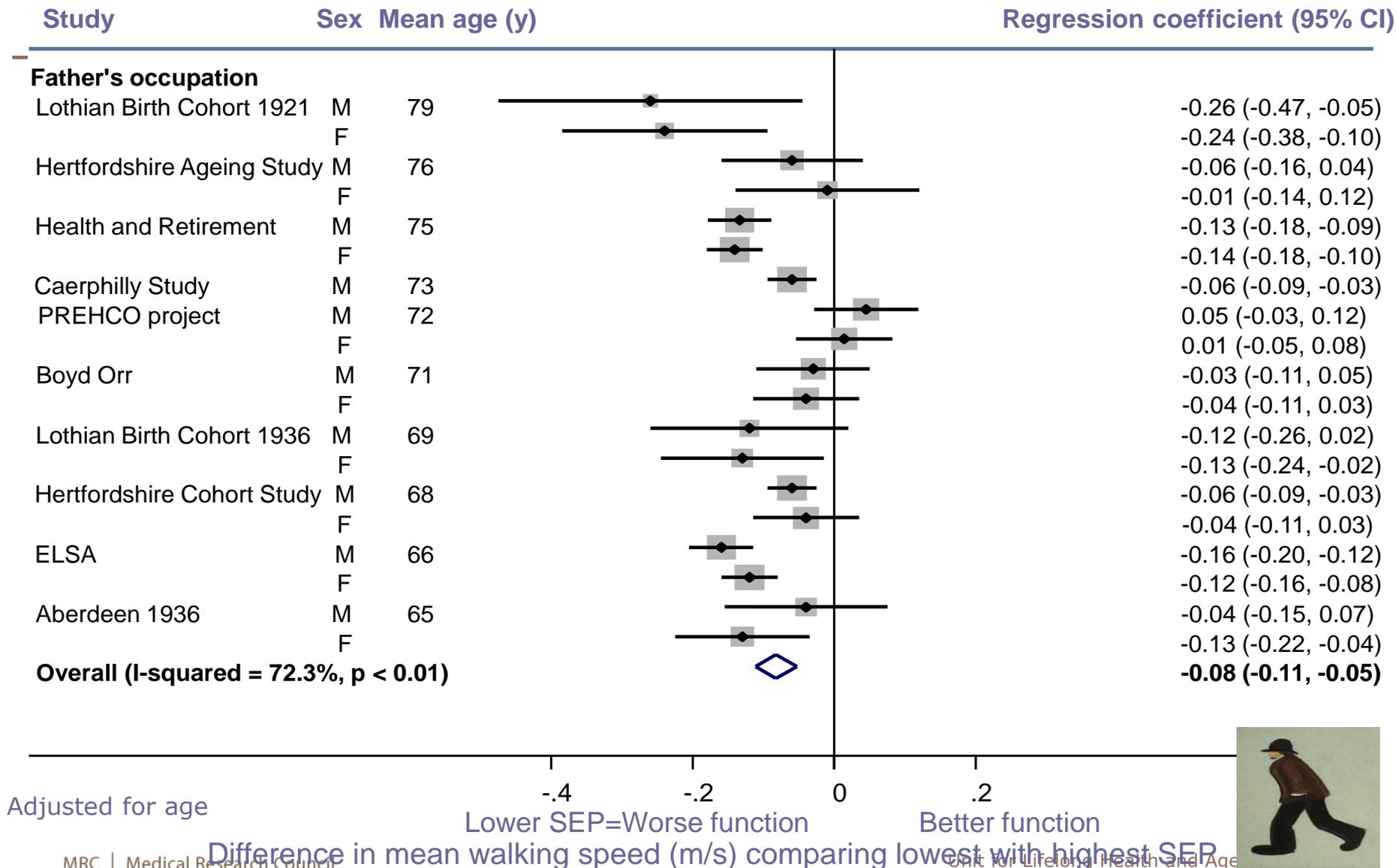
Indicators of healthy ageing being studied:

- Capability: the capacity to undertake the physical and mental tasks of daily living
- Wellbeing: psychological and social
- Underlying biology: physiology and genetics

# 8 integrated work packages



# Childhood SEP and walking speed



# NSHD data collection 2013-18

- Home visit to full sample in 2015-16
  - Update health & life circumstances
  - Repeat tests, biological samples, innovative assessments
- Regular postal questionnaires to full sample
- Clinical sub-studies for more intensive investigations

## Enhancing NSHD programme:

- Healthy ageing, managing health and health care needs, the social environment
- Biology of ageing linking epidemiologists & clinicians/biologists for NSHD studies
  - Metabolomic and epigenomic studies
  - 'Candidate' approach to biomarkers of ageing
  - Systems-based (e.g. collaboration on the ageing lung)

