

ALSPAC update- physical activity and obesity



Avon Longitudinal Study of Parents and Children (ALSPAC)

- Mothers with an EDD April 1991 & Dec 1992
- Living in Avon in South West England
- ~14,000 pregnant women enrolled
- ~12,000 families still involved in some way
- ~5,000 -8,000 children have attended annual clinics since age 7

- Information collected by
 - self-completion questionnaire- carers and children
 - medical records
 - biological samples
 - hands-on measurements- Focus clinics
 - physical activity and DXA from 2003-2008 at ages 12, 14 and 16

Physical activity and change in fat mass in ALSPAC

- What is the relationship between PA and obesity as children go through adolescence?
- Accelerometry and DXA at ages 12, 14 and 16
- Cross-sectional analyses
- Longitudinal analyses using MLM

Longitudinal PA and obesity measures

12y

PA
Fat mass
n=~5500

14y

PA
Fat mass
n=~3800

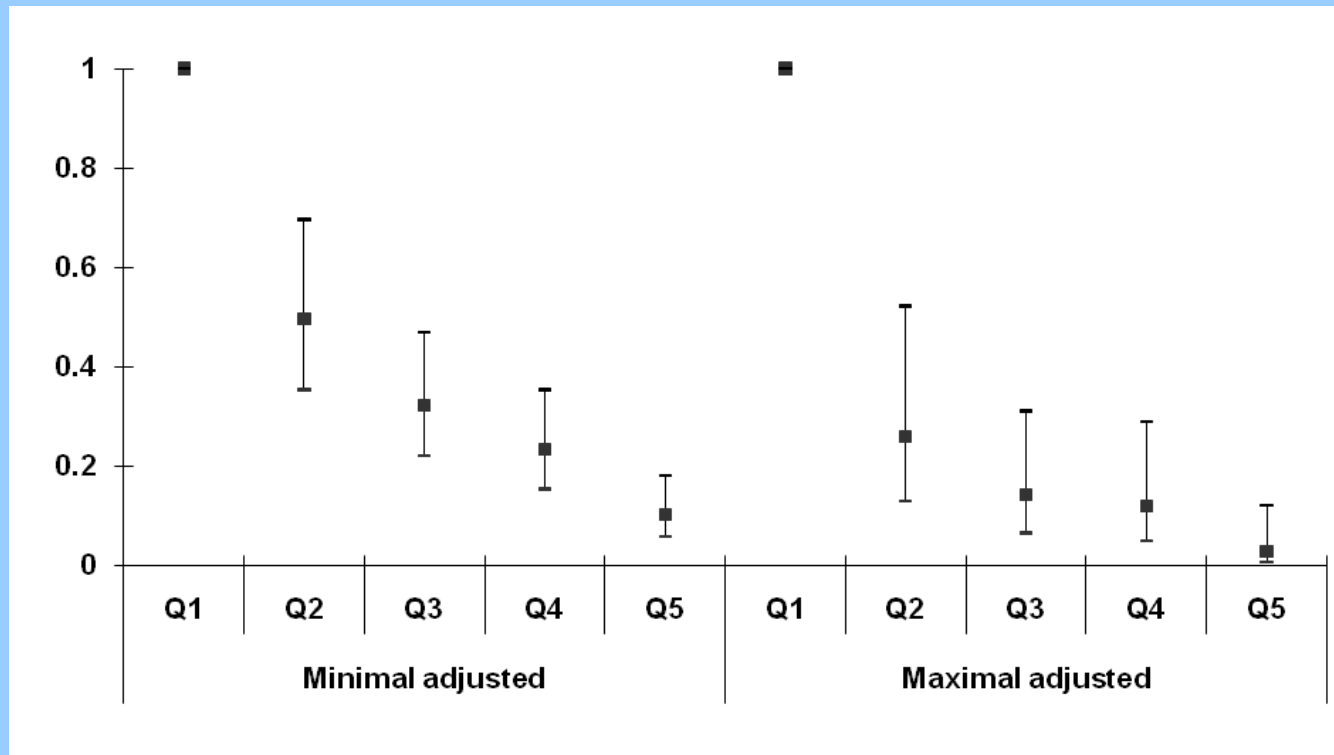
16y

PA
Fat mass
n=~2000



Odds ratio of being obese by quintile of MVPA in boys aged 12

OR



Adjusted for: Age, height, height squared, maternal education, social class, birthweight, gestational age, smoking in pregnancy, obesity of mother, sleep pattern, TV viewing and pubertal stage.

Longitudinal PA and obesity measures

12y

14y

16y

PA

PA

PA

Fat mass

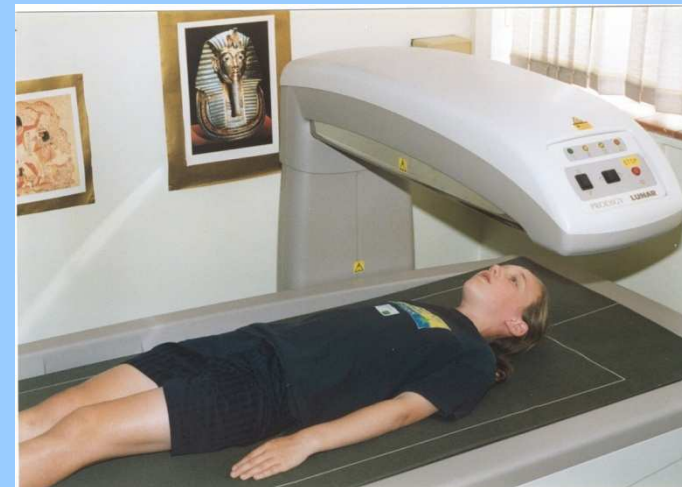
Fat mass

Fat mass

n=~5500

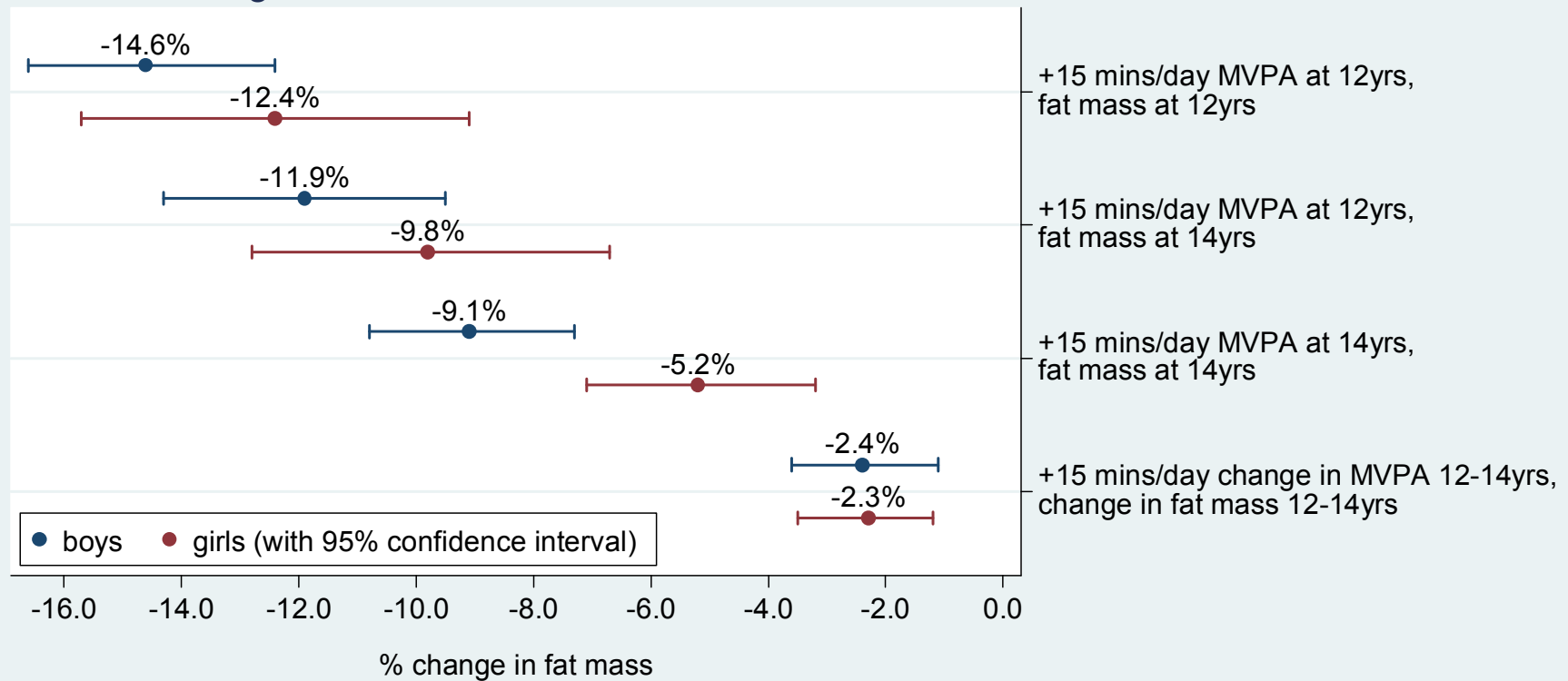
n=~3800

n=~2000



Associations between PA and obesity from ages 12 to 14

Change in fat mass with increased MVPA



Associations between PA and obesity from ages 12 to 16

12y

14y

16y

PA

PA

PA

Fat mass

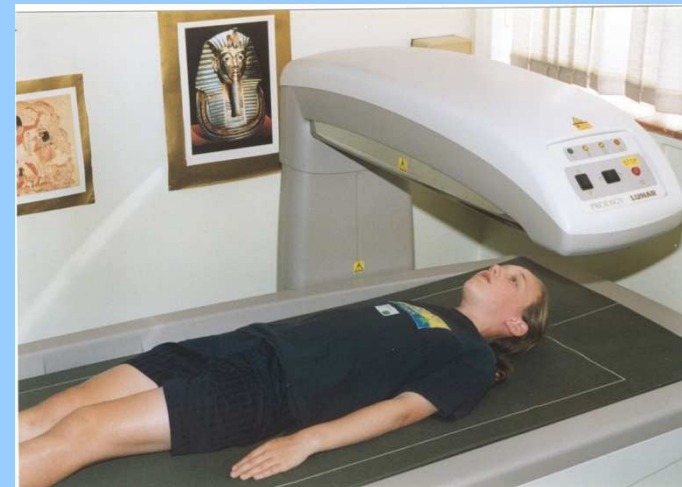
Fat mass

Fat mass

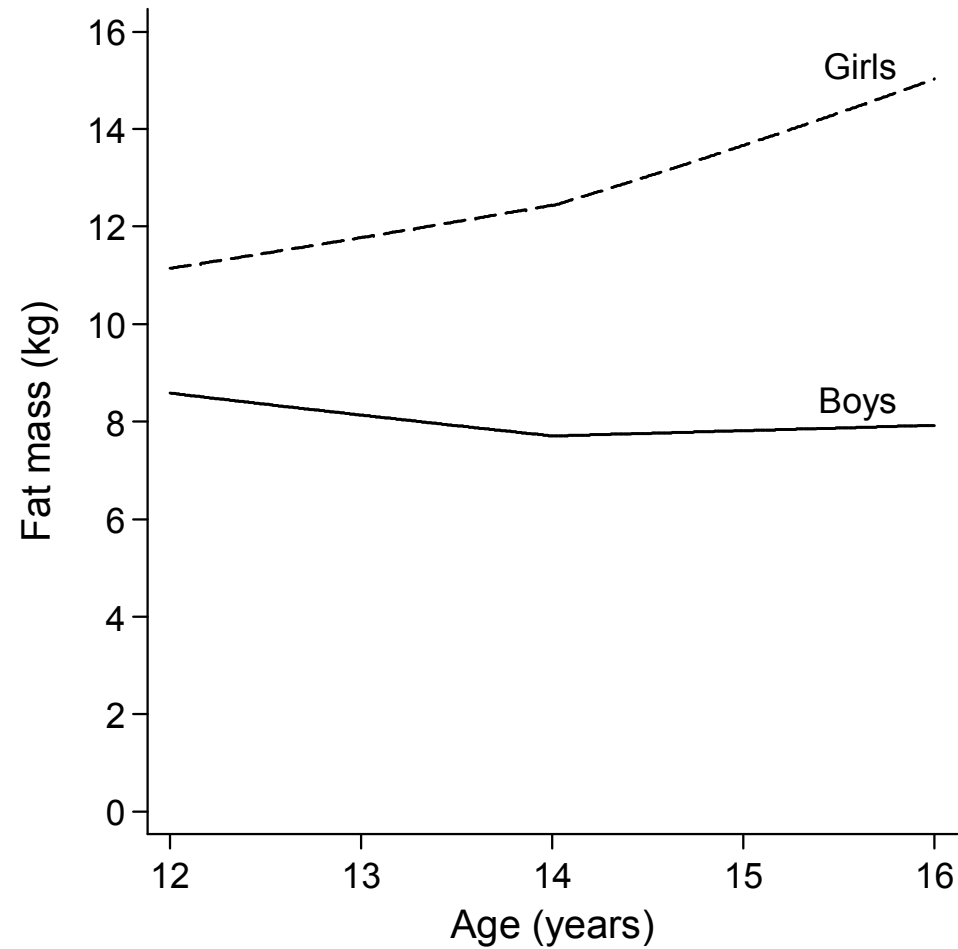
n=~5500

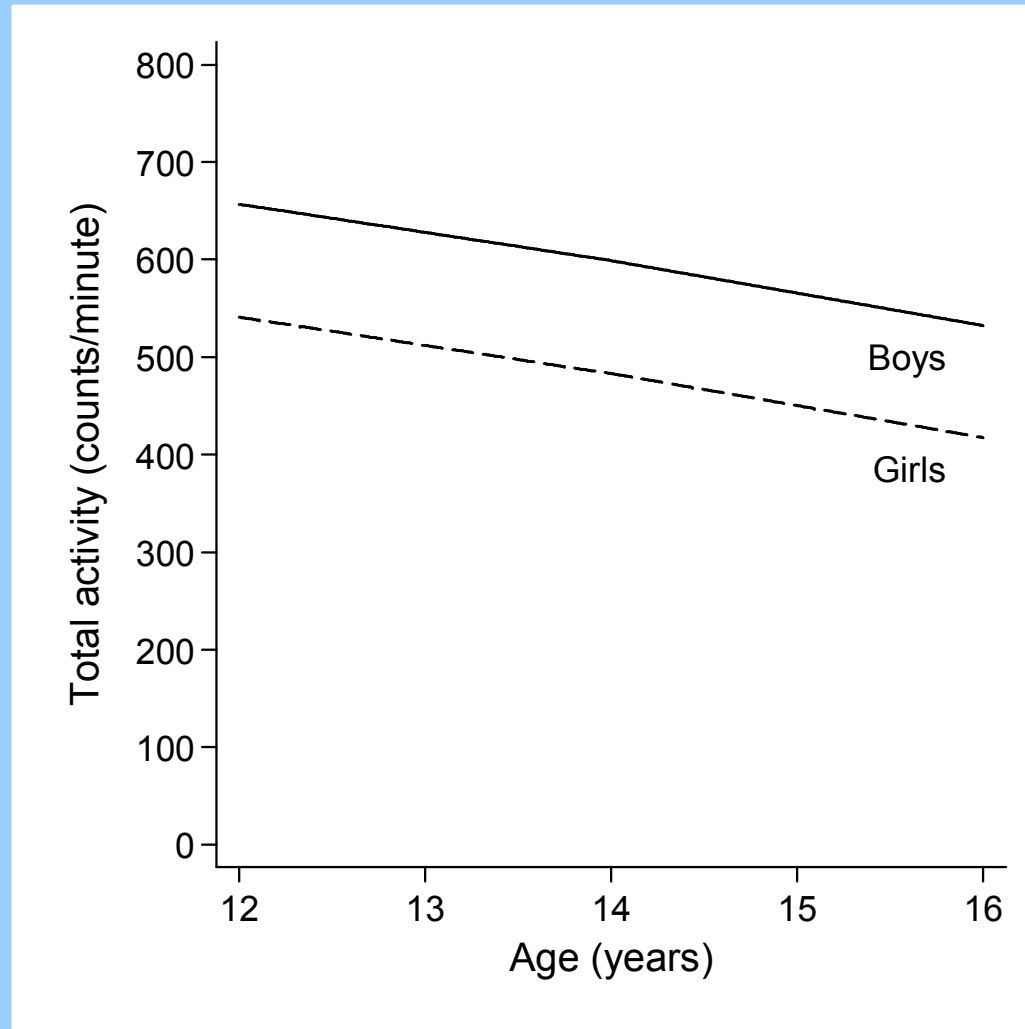
n=~3800

n=~2000

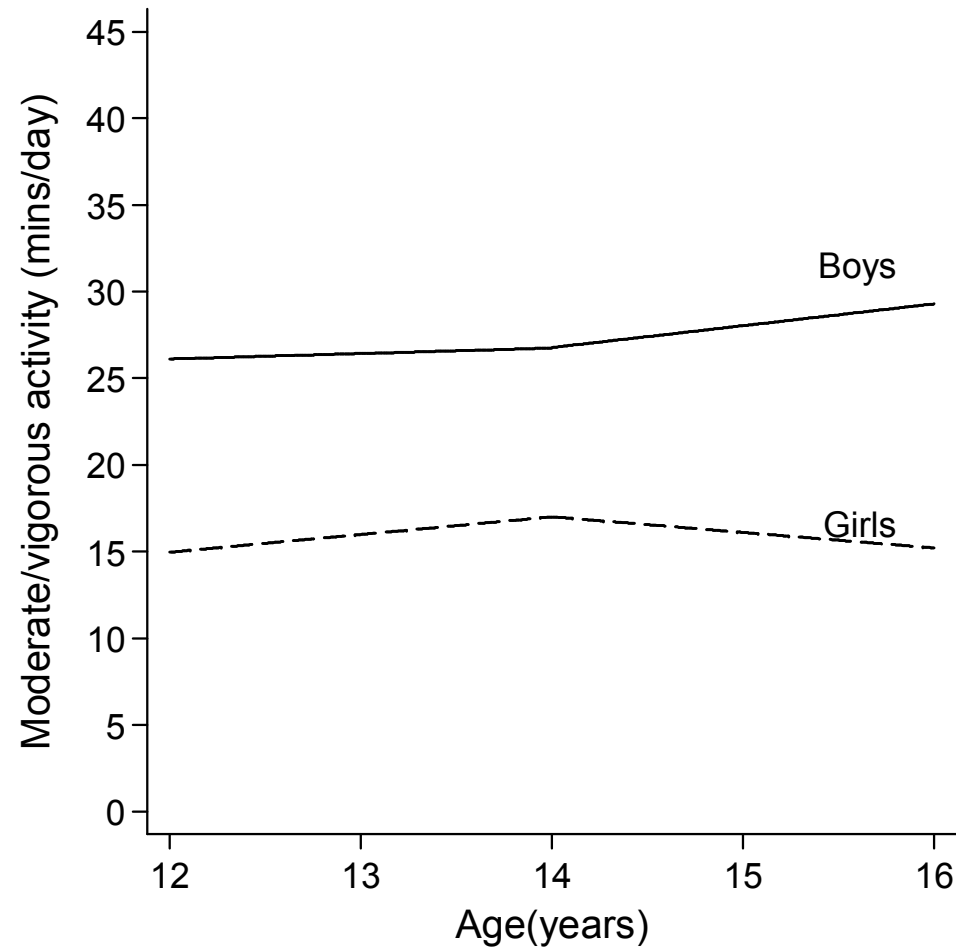


Change in fat mass from ages 12 to 16

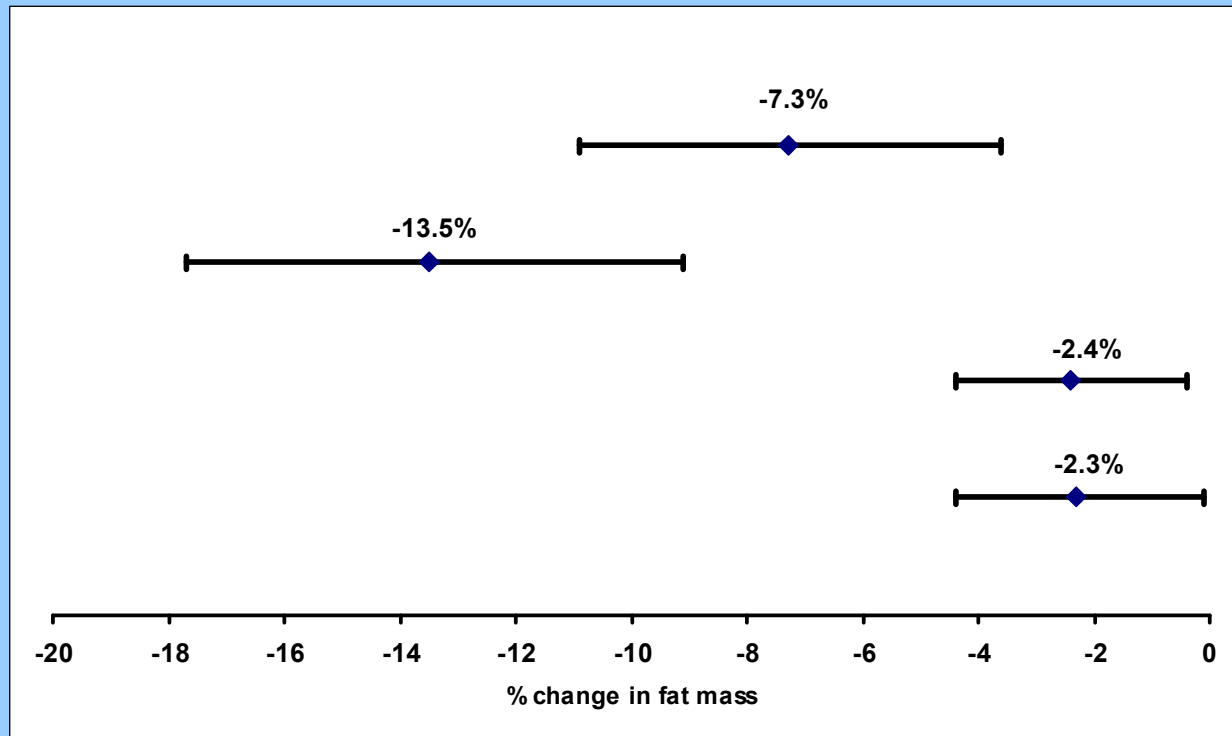




Changes in MVPA from ages 12 to 16



Associations between change PA and change fat mass from ages 12 to 16



+15 mins/day mvpa at 12yrs, fat mass at 16yrs **girls**

+15 mins/day mvpa at 12yrs, fat mass at 16yrs **boys**

+15 mins/day change in mvpa, change fat mass 12-16yrs **girls**

+15 mins/day change in mvpa, change in fat mass 12-16yrs **boys**

Conclusions

- Cross-sectional association at age 12
- MVPA strongest association with later fat mass and obesity
- Change in PA at 12 associated with change in fat mass at 16
- Changes small but potentially important

Conclusions

- Direction of association strongest for PA → obesity/fat mass
- Weak association for obesity → PA
- Is this relationship the same at all ages? (c.f. Earlybird)
- What happens during the transition from adolescence to adulthood?

Thanks to...

- Steve Blair
 - George Davey Smith
 - Alex Griffiths
 - Sam Leary
 - Andy Ness
 - Chris Riddoch
 - Kate Tilling

 - ALSPAC staff
 - ALSPAC participants
- Supported by NIH and the Wellcome Trust and MRC
 - www.bristol.ac.uk/alspac/