



The association between sedentary behaviour and overweight and obesity among nine year old children

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Introduction

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Overview of Presentation

- Research Question
- Methodology
- Findings
- Discussion of results



Research Question

- Pervasive use of entertainment media
- Relationship between technology and health
- Health outcome: overweight and obese



Growing Up in Ireland

- Sample of 8,568 nine-year-old children and their families
- Two-stage design
- Response rate of 82% at school level and
57% at household level
- Statistically reweighted data was used:
- Findings are representative for all nine-year-olds in Ireland



Core Questions

How often do you play sport?

- Never
- 1-2 times a week
- 3-4 times a week
- Almost every day

How often do you take exercise (e.g. running, cycling, swim) for 20 minutes or more ?

- Never
- 1-2 times a week
- 3-4 times a week
- Almost every day



Core Questions

On a normal weekday, during term-time, about how much time does the Study Child spend

- **playing** video games such as, Playstation, X-box, Nintendo etc?
- **watching** television, videos or DVDs?
 - None
 - Less than an hour
 - 1 hour to less than 3 hours,
 - 3 hours to less than 5 hours,
 - 5 hours to less than 7 hours,
 - 7 hours or more



Core Questions

Does the Study Child have the following in his/her bedroom?

- Television
- Computer or laptop
- Video/DVD player
- Games console (playstation etc...)



Weight related questions

- Interviewer measured height and weight of study child
- Body Mass Index score calculated
- International cut off points for body mass index for thinness, overweight and obesity for nine years of age were used *

* Cole et al. Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ*. 2000 6;320(7244):1240-3.

Cole et al. Body mass index cut offs to define thinness in children and adolescents: international survey. *BMJ*. 2007 Jul 28;335(7612):194.

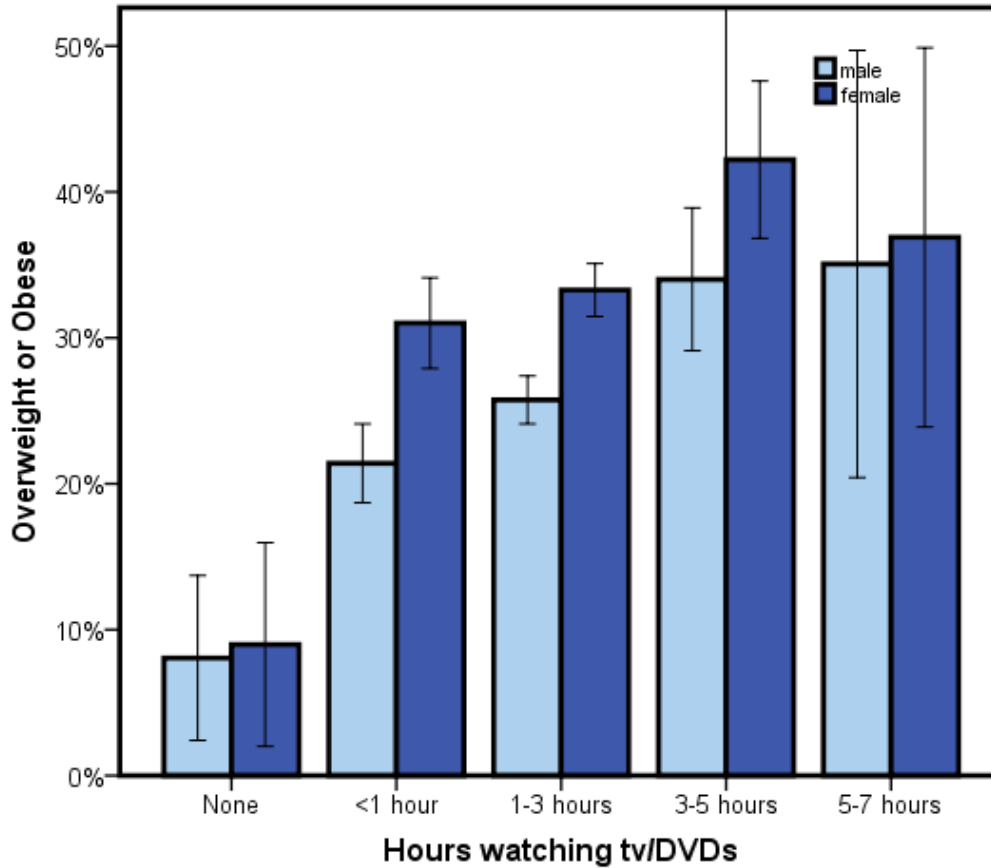


Obesity in 9-year old Irish children

	Prevalence (95% CI)	
	Girls	Boys
Thinness grade 3	5.1% (4.5 – 5.9%)	4.4% (3.8 – 5.1%)
Normal weight	60.4% (58.8 – 61.9%)	69.1% (67.6 – 70.4%)
Overweight	23.1% (21.8 – 24.4%)	18.3% (17.1 – 19.5%)
Obesity	10.0% (9.1 – 11.0%)	6.9% (6.2 – 7.7%)



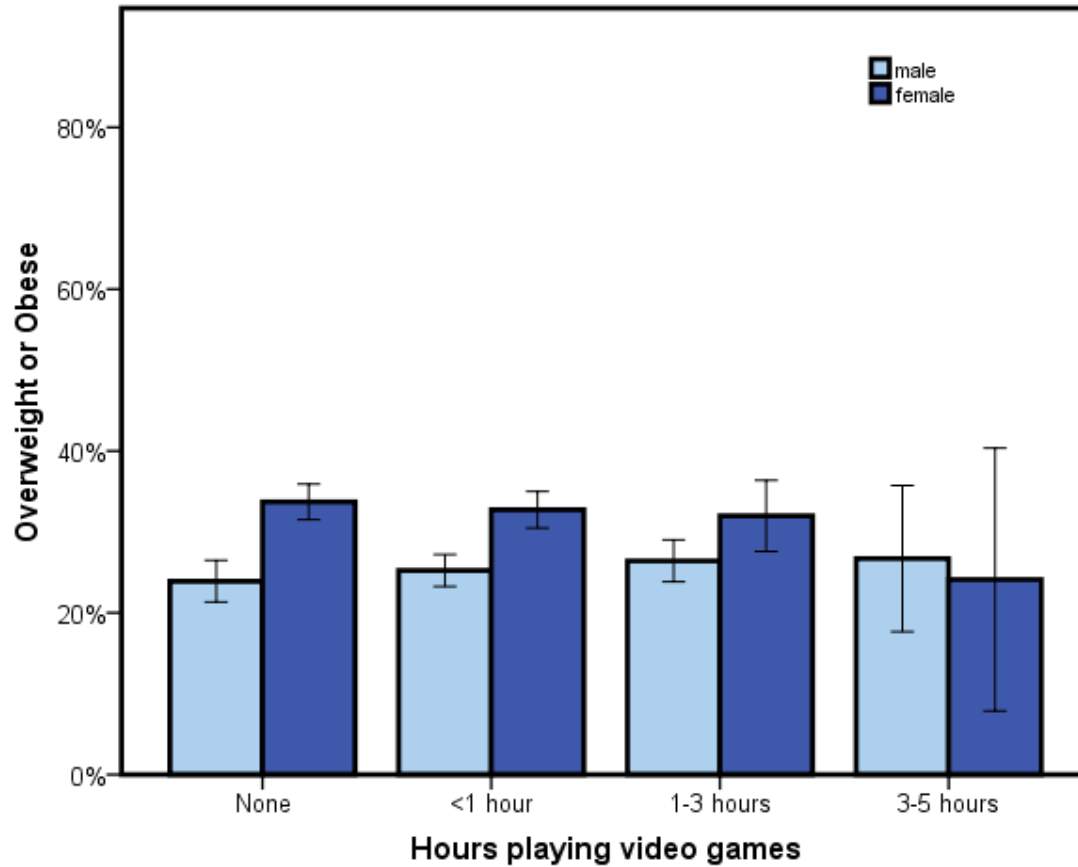
Time spent watching tv and dvds & weight



Error bars: 95% CI

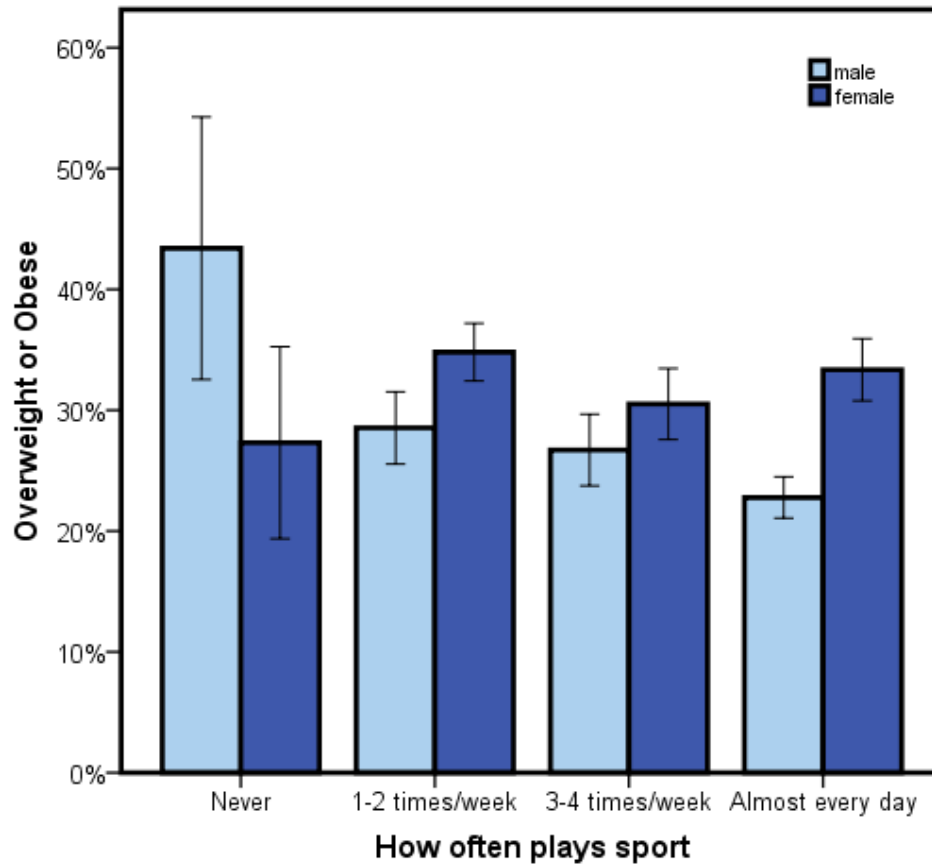


Time spent playing video games & weight



Error bars: 95% CI

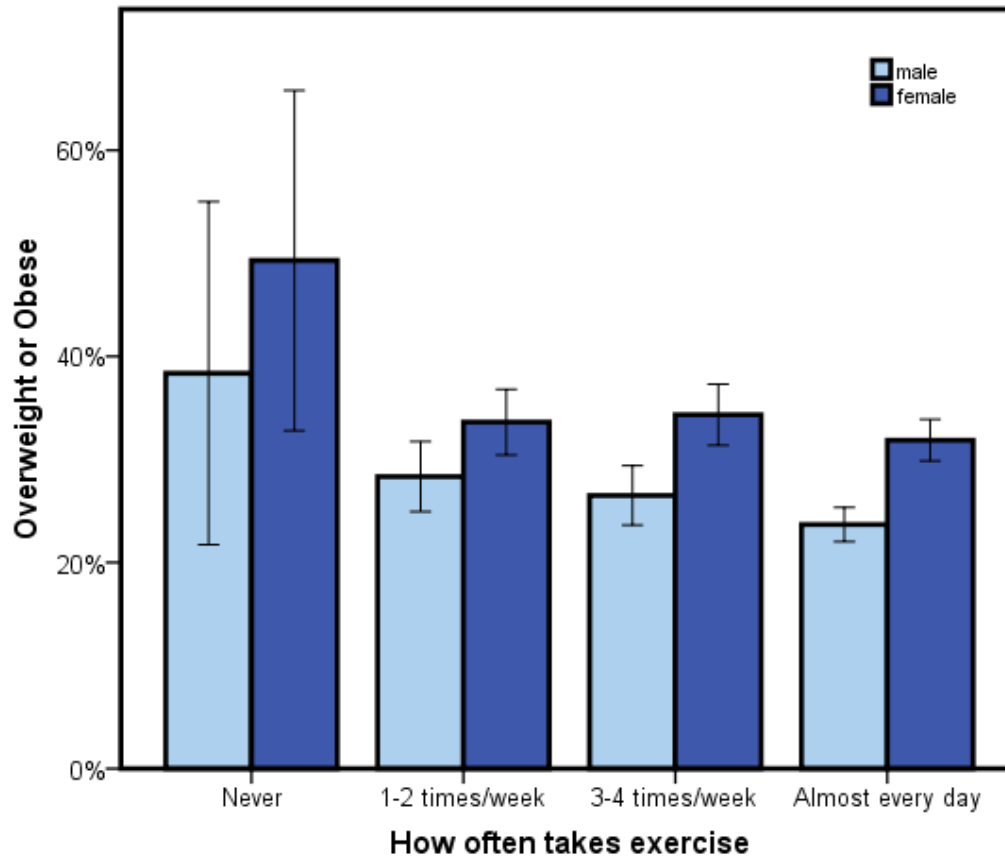
Time spent playing sport and weight



Error bars: 95% CI



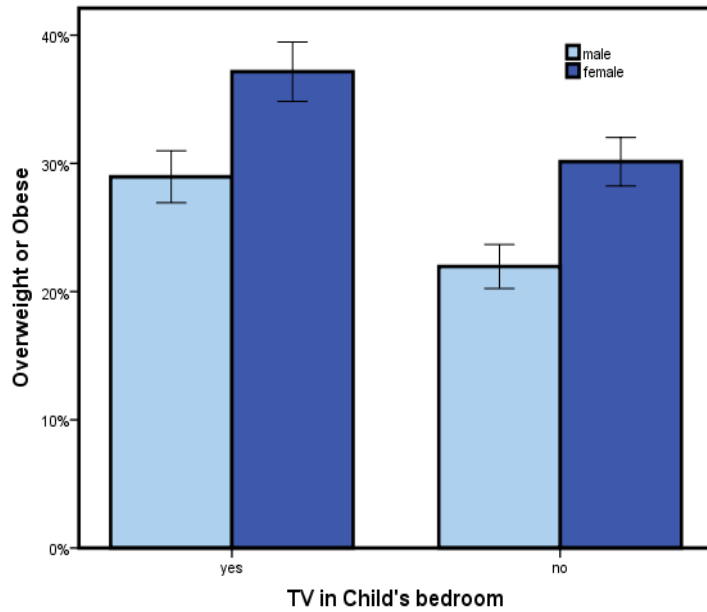
Time spent exercising and weight



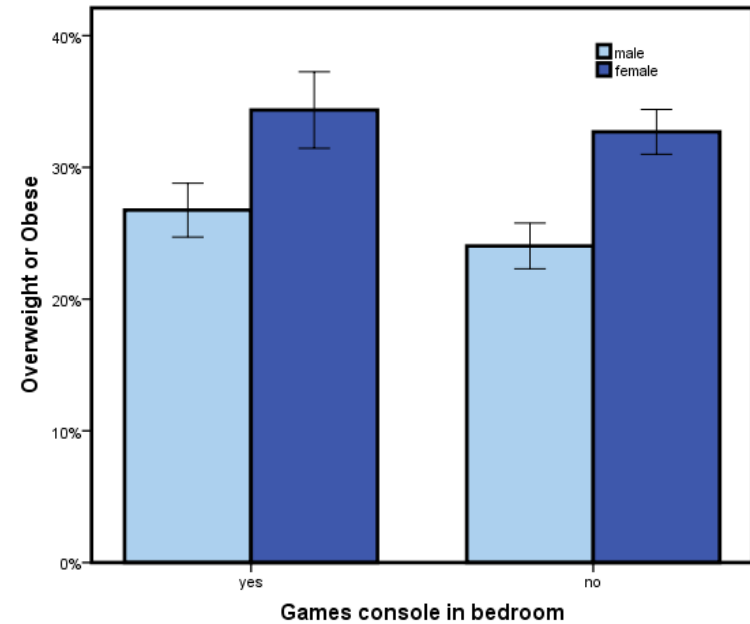
Error bars: 95% CI



Technology in child's bedroom



Error bars: 95% CI



Error bars: 95% CI



Technology in child's bedroom

Child's bedroom		OR (95% CI); p-value
Television	Boys	1.46 (1.26-1.70); $p < 0.001$
	Girls	1.34 (1.16-1.54); $p < 0.001$
Games console	Boys	1.22 (1.05-1.41); $p = 0.009$
	Girls	1.00 (0.85-1.17); $p = 0.961$

Gender-stratified logistic regression models were calculated for being overweight or obese:

Each of the four models was adjusted for equivalised annual household income, occupational household class, family type (dichotomised for single parenthood) and urbanicity (dichotomised for urban vs. rural areas).



Limitations

- Validate time spent on activities
- Differences in child and parental recall of activities
- Developments in entertainment devices e.g. Nintendo products, mobile phone use
- Effect of activities on other child outcomes e.g. behaviours, educational attainments



Conclusions

- Distinct gender differences in use of technology
- Using a television in the bedroom to play computer games may not be associated with being overweight but using it to watch television and dvds/videos is
- Benefit of moderate participation in sport/exercise



References

Cole et al. (2000) Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ*. 6;320(7244):1240-3.

Cole et al. (2007) Body mass index cut offs to define thinness in children and adolescents: international survey. *BMJ*. Jul 28;335(7612):194.

Eisenberet al. (2003). "Associations of Weight-Based Teasing and Emotional Well-being Among Adolescents." *Arch Pediatr Adolesc Med* 157(8): 733-738.g

Hancock et al. (2004) Association between child and adolescent television viewing and adult health: a longitudinal birth cohort study. *Lancet*. 364(9430); 257-62.

Graves et al. (2008) Energy expenditure in adolescents playing new generation computer games. *Br J Sports Med*. 42:592-594



Acknowledgments

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- The Office of the Minister for Children is overseeing and managing the study, which is being carried out by a consortium of researchers led by the Economic & Social Research Institute (ESRI) and Trinity College Dublin.

For more information: www.growingup.ie



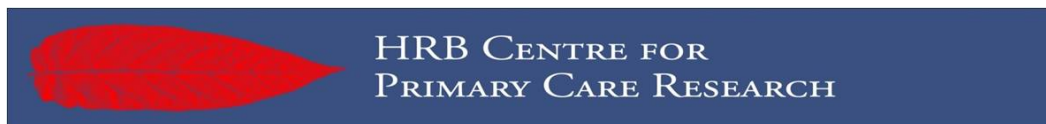


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Thank you!



Jean Monet on His Hobby Horse
Claude Monet (1840-1926)

Questions?