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The Role of Physical Activity in Positive Youth Development and Mental Health

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Labour (and leisure) conditions have changed

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The Physical Activity Transition

Katzmarzyk & Mason, *JPAH*, 2009

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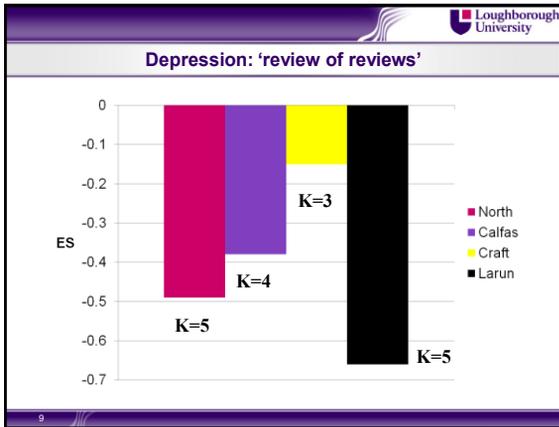
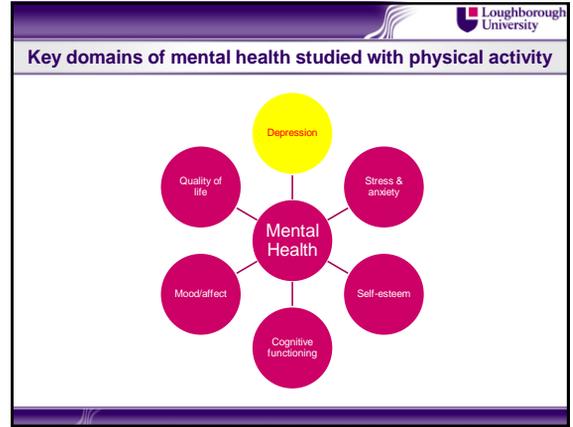
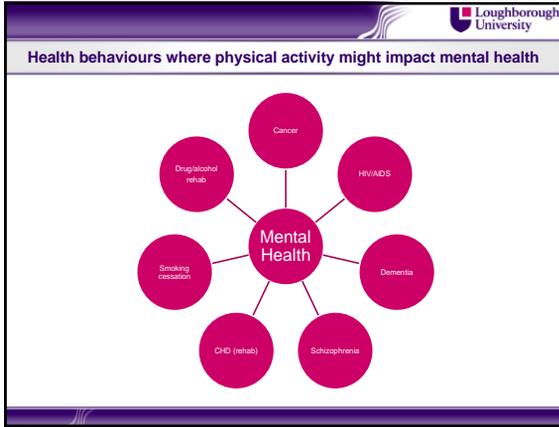
Key domains of mental health studied with physical activity

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Disease burden measured in Disability-Adjusted Life Years (DALYS)

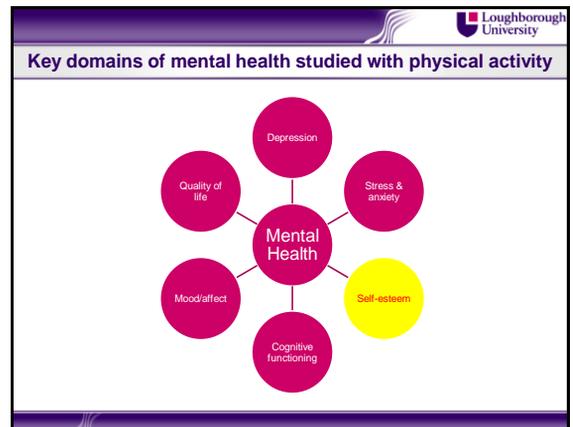
Estimate 1990			Projection 2020		
Rank	Cause	% total	Rank	Cause	% total
1	Lower respiratory infections	8.2	1	Ischaemic heart disease	5.9
2	Diarrhoeal diseases	7.2	2	Unipolar major depression	5.7
3	Perinatal conditions	6.7	3	Road traffic accidents	5.1
4	Unipolar major depression	3.7	4	Cerebrovascular disease	4.4
5	Ischaemic heart disease	3.4	5	Chronic obs pulmonary disease	4.2
6	Cerebrovascular disease	2.8	6	Lower respiratory infections	3.1
7	Tuberculosis	2.8	7	Tuberculosis	3.0
8	Measles	2.7	8	War	3.0
9	Road traffic accidents	2.5	9	Diarrhoeal diseases	2.7
10	Congenital abnormalities	2.4	10	HIV	2.6

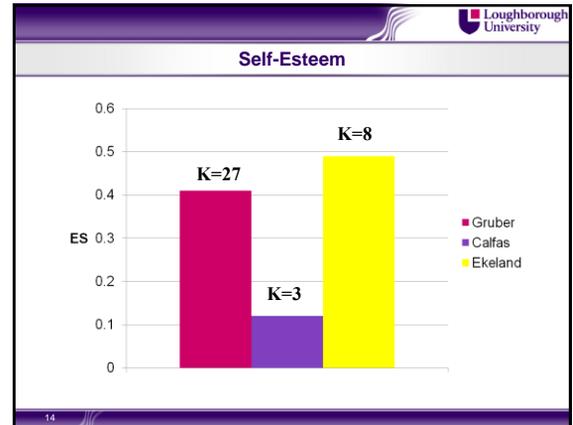
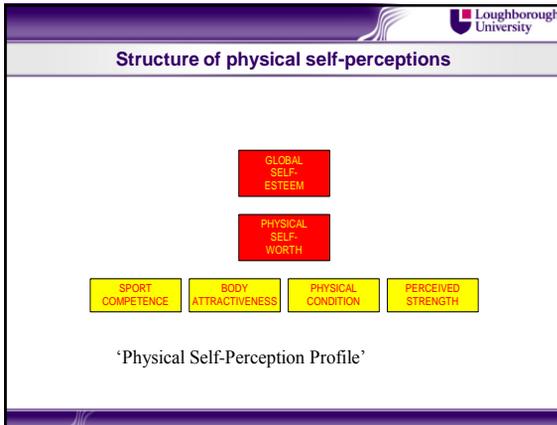
In females and developing countries, unipolar major depression is projected as becoming the leading cause of disease burden



- Depression
- Larun et al.:
 - PA had similar effect to psychosocial interventions
 - ✓ General population (k=2)
 - ✓ Children in treatment (k=1)

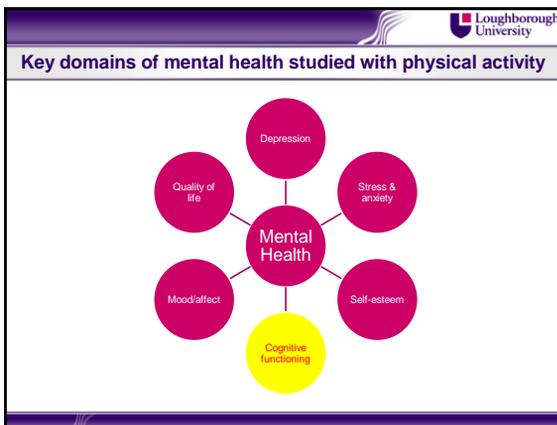
- Depression
- Conclusion:
 - Physical activity over no intervention appears to be potentially beneficial for reducing depression in young people
 - Evidence base is small
 - Many reviews include cross-sectional studies that may distort associations or fail to rule out 'reverse causality'





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- ### Self-Esteem
- **Gruber (1986):**
 - Larger effects for:
 - ✓ children with perceptual, emotional and learning disabilities
 - ✓ aerobic fitness activities

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- ### Self-Esteem
- Conclusion:
 - Physical activity can lead to improvements in self-esteem, at least in the short term
 - But, should also assess 'physical self worth'



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- ### Physical Activity & Cognitive Functioning
- What is cognitive functioning?
 - ✓ **Cognitive/brain functions:** memory, abstract reasoning, spatial ability
 - ✓ **Processes of cognition:** information processing efficiency and speed, attention, perception
 - ✓ **Performance measures:** academic performance

Physical Activity, Cognition and Academic Achievement in Childhood: Meta-analysis

- K=44
- 125 ESs
- K=9 experimental designs

Design	Effect Size
Overall	0.32
Expt	0.28
Quasi-Ex	0.38
Xsec	0.25

Sibley & Etnier, *PES*, 2003

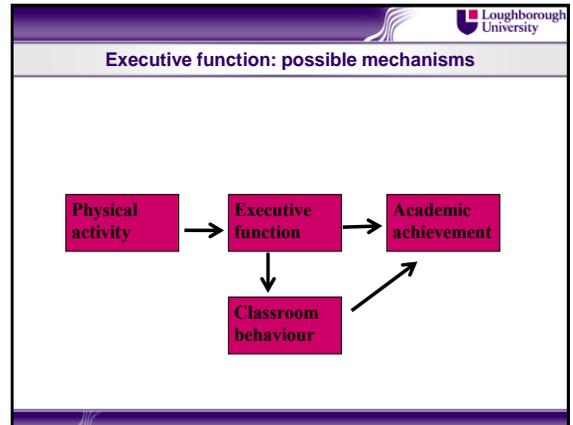
Davis et al. (*Health Psy*, 2011)

- 'Inactive', overweight 7-11 yr olds (N=171)
- **Control group**
- **Low dose** (after school) exercise group (20 min/day) for 3 months
- **High dose** (after school) exercise group (40 min/day) for 3 months
- **Outcomes:** (1) cognitive tests (e.g., planning, attention) and (2) academic achievement (reading, maths)

Davis et al. (2011): post-test scores

Group	Exec Func	Maths	Reading
Control	102	104	100
Low ex	103	105	101
High ex	105	107	100

Supported by fMRI data on sub-sample



Cognitive Functioning

- Physical activity can be associated with improved cognitive performance and academic achievement in young people
- Better effects for higher order executive functioning tasks
- Devoting more time to PE at the expense of classroom time does not adversely affect academic performance (and may help)

Cognitive Functioning

- Associations are usually small and not entirely consistent
- Physical fitness has also been associated with academic performance but has been investigated in few studies
- Emerging neuro-science evidence

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Can physical activity boost positive mental health?

- Yes
- Developing evidence for:
 - ✓ Depression
 - ✓ Self-esteem
 - ✓ Cognitive functioning

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Physical Activity, Sport and Positive Youth Development

- Can 'sport' teach important 'life skills'?

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Context

- "Sports have brought me much happiness and taught me many useful lessons. I cannot prove it to others, but I believe it to be so" (Martens, 1978).

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Context

- "In an attempt to achieve enjoyment and excitement many children turn to sport and through their participation they learn important life skills.
- Sport offers the opportunity to experience the rewards of personal achievement and golf in particular teaches self-discipline, co-operation and respect". (The Golf Foundation)

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Context

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graph TD
    A[Skills for Life] --> B[Sporting and social development of young people]
    B --> C[Playing skills]
    B --> D[Personal skills]
    C --> E[Junior Members]
    D --> F[Good Life Skills]
  
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The diagram illustrates the flow from 'Skills for Life' to 'Sporting and social development of young people', which then branches into 'Playing skills' and 'Personal skills'. 'Playing skills' leads to 'Junior Members', and 'Personal skills' leads to 'Good Life Skills'.

Playing skills: Putting, Short game, Long game, Playing, Gopher's code

Personal skills: Honesty, Respect, Co-operation, Self-motivation, Concentration, Perseverance

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'Good' life skills?

- **'Pro-social' skills**
- Honesty
- Respect
- Co-operation
- **'Personal' skills**
- Self-motivation
- Perseverance
- Concentration

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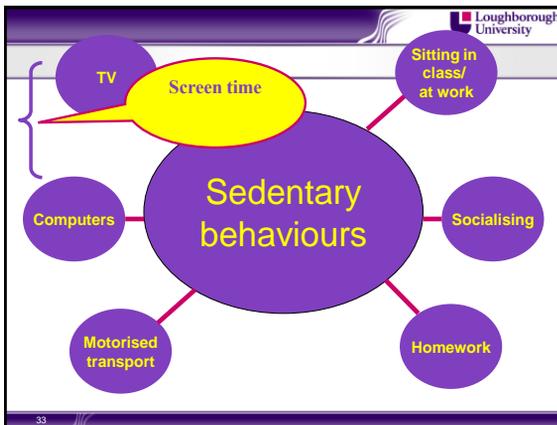
A review of the evidence

- Life skill development appears to be achieved, although this may not be explicitly 'taught' nor will be automatic for all participants
- Key element is good adult leadership/mentoring, and especially the development of interpersonal relationships between the children and adults.

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And finally sedentary behaviour and mental health

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Sedentary Behaviour and Mental Health in Young People

- 8 X-sec studies (some large) show small-to-moderate negative associations between sedentary behaviour and mental health
- Poorer self-perceptions, body image, HRQoL
- Reverse causality possible
- Some control for PA
- 1 longitudinal study shows TV viewing, but not computer games, associated with increased odds of depression after 7y follow-up
- Significant literature on wider aspects of social and behavioural outcomes associated with media use

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