



Physical activity in childcare settings: the role of the environment

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Why the childcare setting?

- Young age
 - Tracking of physical activity and habit formation
 - Tracking of overweight
- Increased childcare use
- Childcare is associated with increased overweight risk*

Window of opportunity!

*e.g. Geoffroy et al., 2012. Childcare and overweight or obesity over 10 years of follow-up. *J Ped*, 162; Gubbels et al. 2010. Child-care use and the association with body mass index and overweight in children from 7 months to 2 years of age. *Int J Obesity*, 34.

Content

- Physical activity in the childcare environment
 - Perceived barriers to physical activity promotion in childcare
 - Influence of the childcare environment on physical activity
- A theoretical framework for examining childcare environment
- Overall conclusions



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Methods

- Interviews with
 - 24 childcare staff members from 7 childcare centers
 - 12 parents of children attending childcare
 - Topic: Barriers and facilitators of PA at childcare



Wilke et al., 2013. Factors influencing childcare workers' promotion of physical activity in children aged 0-4 years: a qualitative study. Early Years.

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Results: Childcare staff

- Childcare staff do not have sufficient:
 - Knowledge of PA, e.g.
 - more than half of the did not know insufficient PA was related to overweight,
 - majority thought pre-schoolers are innately sufficiently active
 - Time to focus on PA, especially in mixed age groups
 - Support from parents
 - E.g. children wearing clothes unsuitable for PA
 - Skills to discuss problems with parents

Wilke et al., 2013. Factors influencing childcare workers' promotion of physical activity in children aged 0-4 years: a qualitative study. Early Years.

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Results: Childcare staff

- Lack of written guidelines/rules regarding PA
- Conflicts between PA and safety concerns
- Childcare staff are aware of their role model function
 - For children
 - For parents



Wilke et al., 2013. Factors influencing childcare workers' promotion of physical activity in children aged 0-4 years: a qualitative study. Early Years.

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Results: Parents

- Parents were unaware of the amount and types of PA at childcare
- Parents thought pre-schoolers are innately sufficiently active
- Children's physical activity restricted by staff, especially in younger children
- Childcare PA practices do not play a role in the selection of a childcare center

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Methods

- 9 childcare centers in the Netherlands (N=175)
- Observations toddler groups (2-3 yrs):
 - Physical activity (OSRAC-P; 20 children per center; total N=175)
 - Environment / context:
 - Physical environment: Activity opportunities (availability play materials, space)
 - Social environment: Prompts and group size (peers and staff)



Gubbels, et al. 2011. Interaction between physical environment, social environment, and child characteristics in determining physical activity at child care. Health Psychology, 30.
Gubbels, et al. 2012. Play equipment, physical activity opportunities, and children's activity levels at childcare. Journal of Environmental and Public Health, 2012.

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Results: Activity levels

- Moderate to vigorous physical activity (MVPA; activity level ≥ 4):
 - Indoor: 5.5%
 - Outdoor: 21.3%
- Sedentary behavior (activity level ≤ 2):
 - Indoor: 59.4%
 - Outdoor: 31.2%



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Results: Influence physical environment

- Physical environment:
 - Positive association activity opportunities in general and physical activity (PA) level
 - Specific play equipment associated with increased PA:
 - Jumping equipment (outdoors)
 - Playground markings (outdoors)
 - Size playground (indoors)
 - Play equipment associated with decreased PA:
 - Sandboxes, slides and swings (outdoors)
 - Riding toys (indoors)

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Results: Influence social environment and child characteristics

- Social environment:
 - Prompts:
 - Positive prompts: higher PA level
 - Negative prompts: no-association
 - Group size:
 - The larger the group, the lower the PA levels
- Child characteristics:
 - Age:
 - 3-year-olds were more active than 2-year-olds

Gubbels, et al. 2011. Interaction between physical environment, social environment, and child characteristics in determining physical activity at child care. *Health Psychology*, 30.

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Conclusions

- Low levels of activity
- Association with physical and social environment: childcare as setting for interventions
- Some play equipment associated with decreased PA intensity levels
 - Implications for practice: Which play equipment?
 - PA intensity vs. other components (i.e. motor skills)



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A theoretical framework for examining childcare environment

- Applying an ecological framework on children's physical activity
- Basic assumptions:
 - Not all environmental influences on behavior are direct;
 - Interaction between factors in the environment
 - Influence of an environmental factor on behavior is dependent on other factors

Gubbels et al., 2014. The next step in health behavior research: the need for ecological moderation analyses – an application to diet and physical activity at childcare. Int J Behav Nutr Phys Act, 2014.

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A theoretical framework for examining childcare environment

Hypotheses:

- Interaction between environmental settings
 - Influence of childcare environment on PA depends on what happens at home..
 - ..and vice versa
- Interaction between environmental factors and individual characteristics
 - Children with different characteristics will respond differently to similar environment
- Interaction between environmental types (social, physical)
 - E.g. Influence of childcare staff (social) is dependent on the facilities they can use (physical environment)

Gubbels et al., 2014. The next step in health behavior research: the need for ecological moderation analyses – an application to diet and physical activity at childcare. Int J Behav Nutr Phys Act, 2014.

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Methods

- Systematic review
 - Inclusion criteria:
 - pre-school age
 - childcare setting
 - examining the association between environmental factors and PA
 - including an examination of one of the types of interaction described in the hypotheses



Gubbels et al. 2014. The next step in health behavior research: the need for ecological moderation analyses – an application to diet and physical activity at childcare. IJBNPA, 2014, 11.

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Interaction between settings (childcare and home)

- No quantitative studies
- Indications from qualitative studies*:
 - Communication between parents and childcare important for PA at childcare
 - Importance of parental support (e.g. limiting time spent outdoors, expressing other priorities)
 - Importance of continuity between both settings (e.g. having the same practices)

* e.g. Copeland et al. *Societal values and policies ...child care centers. Pediatrics*, 2012. 129:265-274; O'Connor & Temple. *Constraints and facilitators... day care. Austr J Early Childh*, 2005. 30:1-9.; Tucker et al. *The influence of parents... perspectives. BMC Public Health*, 2011. 11:168; Wilke et al. *Factors influencing child care...qualitative study. Early Years*, 2013.

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Interaction between environment and individual characteristics: gender

- Moderation by gender
 - Physical environment:
 - Boys responded more strongly to physical environment
 - Social environment:
 - Girls more negatively affected by group size
 - Girls more compliant to prompts

*Boldemann et al. *Impact of preschool environment...sun exposure. Prev Med*, 2006. 42:301-8; Cardon et al. *The contribution of preschool...during recess. Int J Behav Nutr Phys Act*, 2008. 5:11; Gubbels et al. *Interaction between physical environment... child care. Health Psychology*, 2011. 30:84-90.

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Interaction between environment and individual characteristics: age

- Moderation by age
 - Physical environment:
 - Activity-promoting playground intervention
 - older children increased VPA
 - younger children increase MVPA
 - Social environment:
 - Older children decrease activity level if more peers are present
 - Younger children decrease activity level if more supervisors are present

Gubbels et al. Interaction between physical environment... child care. Health Psychology, 2011. 30:84-90;
Hannon & Brown. Increasing preschoolers'...playground intervention. Prev Med, 2008. 34:23-9.

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Interaction between types of environment

- Interaction between physical and social environment:
 - Positive influence of activity opportunities (physical environment) on PA was only present when children were playing in groups, not when playing alone or one-to-one (social environment)

Gubbels et al. Interaction between physical environment, social environment, and child characteristics in determining physical activity at child care. Health Psychology, 2011. 30:84-90.

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Conclusions

- Empirical studies supporting an ecological view physical activity at childcare are scarce
- Future quantitative studies should adopt an ecological perspective at environmental influences on child behavior
 - Interaction between all environmental types
 - Moderating child characteristics other than age and gender (e.g. temperament, behavioral style, weight status)
 - Interaction between home and childcare (and other settings, e.g. preschool, grandparents)
- Importance for intervention development

Gubbels et al. Interaction between physical environment, social environment, and child characteristics in determining physical activity at child care. Health Psychology, 2011. 30:84-90.

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Conclusions...

- Pre-schoolers are quite inactive
- Important influence of the childcare environment
 - Physical environment
 - Social environment
 - Childcare staff
 - Peers
 - Parents
- Interaction between environmental factors: importance of context
- Implications for research and interventions



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Thank you for your attention!



Questions?

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