Non-curricular approaches for increasing physical activity in youth: a review
Jago R, Baranowski T

CRD summary
This review assessed the effectiveness of non-curricular interventions for increasing physical activity in children and adolescents. The authors concluded that physical activity can be increased during break periods, through existing organisations, summer day camps and perhaps using active transportation. The limited search, poor reporting of the methods and lack of a quality assessment mean that the conclusions are not robust.

Authors' objectives
To assess the effectiveness of non-curricular interventions for increasing physical activity in children and adolescents.

Searching
PubMed and MEDLINE were searched for reports published in English between 1970 and 2002; no search terms were reported. Manual searches were also conducted and lead authors were contacted for details of any studies awaiting publication. Unpublished reports and dissertations were excluded.

Study selection
Study designs of evaluations included in the review
Case reports were excluded. The authors did not report any other inclusion or exclusion criteria relating to study design.

Specific interventions included in the review
Studies of non-curricular interventions aimed at increasing physical activity were eligible for inclusion. The included studies used physical activity during school breaks, active travel to school, extracurricular activities and summer schools or camps.

Participants included in the review
Studies of children and adolescents aged 5 to 18 years were eligible for inclusion.

Outcomes assessed in the review
Studies that evaluated subjective or self-reports of either physical activity at the intervention location or habitual activity were eligible for inclusion. The studies had to report physical activity before and after the intervention. The included studies assessed self-reported sweating, minutes of moderate to vigorous activity, self-reported physical activity, double-labelled water for energy expenditure, body fat and the Girls activity questionnaire.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
The studies were grouped by type of intervention and combined in a narrative.

How were differences between studies investigated?
Differences between the studies were discussed in relation to the interventions.

**Results of the review**

Nine studies were included, of which one was a randomised controlled trial (RCTs) and at least three had control groups. In the RCT, 24 schools were randomised. Other studies involved individual children, classes and schools.

**Physical activity during school breaks (5 studies).**

Three studies found that interventions during school breaks (painting school playgrounds, playground supervisors implementing a games curriculum, and taught playground games or introduced equipment) could increase physical activity by 17 to 60%. One study found that an increased number of physical activity sessions during the day significantly increased activity among boys, but not girls. One study found that structured break periods significantly increased self-reported physical activity in boys and girls.

**Active travel to school (1 study).**

One study found that travel coordinators had no significant effect on self-reported school travel patterns.

**Extracurricular activities (1 study).**

One study found that after school resistance training had no significant effect on energy expenditure in 12 obese girls.

**Summer schools or camps (2 studies).**

Two studies found no consistent significant increase in physical activity. One study found that a summer day camp did not significantly increase physical activity measured by the CSA, but it did increase self-reported usual activity. The other study found that an after school 'activity club' plus summer day camp did not significantly change self-reported habitual blocks of moderate to vigorous activity.

**Authors' conclusions**

Physical activity can be increased during break periods, through existing organisations, summer day camps and perhaps using active transportation.

**CRD commentary**

The review question was clear in terms of the participants, intervention and outcomes. The inclusion criteria for study design were not explicitly stated. Only one database was searched and this might have resulted in the omission of other relevant studies. No attempts were made to minimise language or publication bias. The search strategy was not reported in full and so can neither be evaluated nor replicated. The methods used to select the studies and extract the data were not described, thus it is not known whether any efforts were made to reduce errors and bias. Validity was neither assessed nor discussed.

Some information on the included studies was presented, but the study design was not always clear and attrition rates were not reported. Some abbreviations for the outcome measures used in the data extraction table were not defined, and this hampered the interpretation of the results. The narrative synthesis was appropriate given the diverse nature of the included studies. Some discussion of the results with respect to study quality would have allowed a clearer picture of the strength of the evidence to emerge. Given the limitations of this review, it was difficult to assess the robustness of the authors' evidence. The conclusions appear to have been based on very limited evidence and, therefore, may not be reliable.
Implications of the review for practice and research
Practice: The authors stated that active travel to school requires attention to city planning.

Research: The authors stated that further research on factors that would increase the effectiveness of the interventions is required. Future research should also assess the effects on physical activity of environmental and educational interventions, both separately and in combination, and different types of summer camps. Finally, research is needed to determine how best to transfer the increased activity at summer camps into habitual activity.

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