

# Synergetic impact of outdoor preschool environment on physical activity and UV radiation from the sun

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## Introduction

Health programs increasingly compete for resources and attention, for instance community-based intervention programs for physical activity vs. skin cancer control programs. The improvement of children's physical outdoor environment may favourably impact both and several other factors relevant to health. Strong reasons motivate intervention at preschool level: Instant beneficial impact of healthy behaviour from an early start may track into adulthood, and additionally an increasing number of young children spend the lion's share of their waking hours at preschool.

## Method

The OPEC tool (Outdoor Play environment Categories) was used to assess elements in the physical environment, "dynamic areas" that triggered creative, communicative and physically active play. Also, behaviour settings were defined by elaborate behaviour mapping. The contribution of outdoor environment to "unintentional" sun protection was studied by sky view imaging to determine the fraction of free sky (trees cutting the view) from positions where children play. The impact of physical activity and sun exposure was jointly measured using dosimetry, pedometry and accelerometry. Studies were run in 2004 in Stockholm County (pine forests, rocky, uncultivated land) as part of the SCAMPER project, and in 2009 in Raleigh, NC

(subtropical landscape) and in Malmö (agricultural landscape) as part of the Kidscape project.

## Results and Discussion

Results show a consistency in criteria required to promote physical activity and sun protection in children, irrespective of landscape or latitude. Some of these criteria are: accessible surface of  $\geq 3000$  m<sup>2</sup>, multileveled surface covered by trees and shrubbery, removal of fences segmenting the inside area, average sky view  $< 50\%$ .

In several Swedish municipalities policies of land use and interior administrative management of outdoor land use have been adapted to monitoring the quality of preschool outdoor environment which is assessed along criteria as defined by OPEC, and the findings of the SCAMPER and Kidscape projects, as described above. The findings have resulted in the integration of new guidelines in local policies. The new procedures involve an upgrading of the outdoor environment, e.g. incorporation of land by rerouting lanes and roads, plantation of rapidly growing trees and shrubbery etc. For new preschools the outdoor environments are planned to fulfil the new standards which have been harmonized with the municipal guidelines of land use, and been integrated in routine environment and health impact assessment. This improvement of outdoor environment is combined with a development of outdoor education.

## References

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