



Review

A systematic review on the effectiveness of school and community-based injury prevention programmes on risk behaviour and injury risk in 8–12 year old children



Joske Nauta^a, Willem van Mechelen^a, René H.J. Otten^b, Evert A.L.M. Verhagen^{a,*}

^a Department of Public and Occupational Health, VU University Medical Center, The Netherlands

^b Medical Library, University Library, VU University Amsterdam, The Netherlands

ARTICLE INFO

Article history:

Received 3 January 2013
Received in revised form 11 July 2013
Accepted 18 July 2013
Available online 17 August 2013

Keywords:

Child
Exercise
Wounds
Injuries
Primary prevention

ABSTRACT

Objectives: To review existing literature on the effectiveness of community-based and school-based physical activity related injury prevention programmes implemented to increase safety behaviour and decrease injury risk in 8–12 year old children, considering the methodological quality of the studies.

Design: A systematic review with quality assessment.

Methods: A systematic search was performed using the CINAHL, Cochrane, EMBASE, PubMed and Sportdiscus databases. Inclusion criteria included the following: children aged 8–12 years; school- or community-based injury prevention programmes; an outcome defined as number of injuries, injury incidence or safety behaviour; published in an English language journal. Methodological quality was assessed for all included studies.

Results: The search yielded 5377 records, of which 11 were included in the review; four studies were considered as being of high quality. The focus of studies that were included was on the use of safety devices (8), pedestrian safety (2) and physical activity-related injury prevention (1). For safety device use, short term effects of school- and community-based interventions are promising for 8–12 year olds. Results regarding sustainability of the effect are inconsistent. A mediating effect on the distribution of safety devices was observed. Both financial and non-financial barriers seemed to prevent participants from purchasing a safety device.

Conclusions: The short term effects for school- and community-based interventions using safety devices for 8–12 year olds are promising. More high quality research is, however warranted, preferably shifting focus from safety behaviour change to actual physical activity injury reduction.

© 2013 Sports Medicine Australia. Published by Elsevier Ltd. All rights reserved.

1. Introduction

The health benefits of physical activity are numerous, and have been the focus of research for decades.^{1,2} Recently, much effort has been made to stimulate children towards becoming more physically active. Despite the positive effects of increased physical activity on child health,³ there is also a risk of getting injured.^{4,5} As such, preventing physical activity-related injuries in children has a great impact on health. In the short term the absolute number and associated costs decrease.^{5,6} In the longer term the risk of injury recurrences and chronic damage is prevented.⁶

Extensive research has been conducted in the field of organised sports-related injuries in children.^{7,8} Recent literature, however suggests that interventions targeting injury prevention in younger

children (i.e. 8–12 years old) might have a larger impact outside the organised sports setting.^{4,9} For example, younger children usually participate in a substantial amount of leisure time physical activities next to organised sports.⁵ Prevention strategies are also more beneficial to children who do not regularly participate in organised sport and are therefore the least physically active.⁹ Additionally, these children seem to be more vulnerable to injury.⁴ To target younger children at risk, a broader approach beyond organised sports is, therefore needed.

Community-based interventions can offer a broader approach to reduce injuries, by potentially changing community norms and behaviours to reduce the risk of injury.¹⁰ Such community-based interventions have been extensively studied, unfortunately evidence regarding their effectiveness is inconsistent.^{10–13} Although no previous literature overviews physical activity related injuries in children, results of available reviews do show that some of the programmes targeting specific injury categories were successful, while other more broadly targeted programmes demonstrated less

* Corresponding author.

E-mail address: e.verhagen@vumc.nl (E.A.L.M. Verhagen).

Table 1
Criteria of the Downs and Black¹⁴ checklist.

Subcategory	Quality criteria	A/B/C ^a	
Reporting	1	Is the hypothesis/aim/objective of the study clearly described?	A
	2	Are the main outcomes to be measured clearly described in the Introduction of Methods section?	A
	3	Are the characteristics of the patients included in the study clearly described?	A
	4	Are the interventions of interest clearly described?	A
	5	Are the distributions of principal confounders in each group of subjects to be compared clearly described?	B
	6	Are the main findings of the study clearly described?	A
	7	Does the study provide estimates of the random variability in the data for the main outcomes?	A
	8	Have all important adverse events that may be a consequence of the intervention been reported?	A
	9	Have the characteristics of patients lost to follow-up been described?	A
	10	Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001	A
External validity	11	Were the subjects asked to participate in the study representative of the entire population from which they were recruited?	C
	12	Were those subjects who were prepared to participate representative of the entire population from which they were recruited?	C
	13	Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of the patients received?	C
Internal validity (bias)	14	Was an attempt made to blind study subjects to the intervention they have received	C
	15	Was an attempt made to blind those measuring the main outcome of the intervention	C
	16	If any of the results of the study were based on "data dredging", was this made clear?	C
	17	In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls?	C
	18	Were the statistical tests used to assess the main outcomes appropriate?	C
	19	Was compliance with the interventions reliable	C
Internal validity (confounding)	20	Were the main outcome measures used accurate (valid and reliable)	C
	21	Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population	C
	22	Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?	C
	23	Were study subjects randomised to intervention groups?	C
	24	Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable?	C
	25	Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?	C
	26	Were losses of patients to follow-up taken into account?	C

^a Scoring instructions A: Yes = 1, No = 0; B: Yes = 2, Partial = 1, No = 0; C: Yes = 1, No = 0, unable to determine.

convincing results.¹³ Adjusting an injury prevention programme to a specific group may therefore be most efficient.

A school-based injury prevention programme would be best suited to reach children with low habitual levels of physically activity and a high injury risk. This way, the prevention programme can be designed to target specific age groups and injury types. A further advantage of school-based interventions is the easily implementable educational aspect of an intervention, which is identified as a key element of a successful injury prevention programme.¹⁰

Although community-based and school-based strategies for injury prevention seem promising, the impact of these initiatives on physical activity related injuries remains unclear. Therefore, a systematic review was conducted to evaluate the effectiveness of community-based and school-based interventions targeting physical activity-related behaviours among 8–12 year old children. Methodological quality was assessed for all included studies, since use of inadequate research methodologies have been reported in unintentional injury prevention research.¹⁰

2. Methods

A systematic computerised search was performed using five databases (CINAHL, Cochrane, EMBASE.com, PubMed and Sportdiscus). Search terms used were a combination of four elements, namely: (a) age (i.e. child, schoolchild, youth); (b) injury (i.e. injury, wound, fracture); (c) prevention (i.e. primary prevention, intervention); (d) sports and physical activity (i.e. sports, movement, walking). All keywords corresponding with the search elements were used as thesaurus terms (Mesh for PubMed, Emtree for Embase), title words and abstract words in all databases (except

for Cochrane which was only searched by title and abstract words). Furthermore, all relevant reviews that appeared in the search and personal files of members of the research team were examined to identify further publications of interest.

All of the following criteria had to be met with in order to be included in the review: (a) the participants were healthy children; (b) mean age at baseline was from 8–12 years; (c) the research involved a school-based or community-based physical activity-related injury prevention study; (d) the outcome was the number of injuries and/or safety behaviour; and (e) the article was published in a peer-reviewed English language journal after January 1st 2000 and before April 28th 2011.

All yielded articles were screened for relevance based on the title and abstract independently by two authors (JN and EV). In cases where misclarity seemed evident, the full text articles were retrieved. The final inclusion or exclusion of an article was made after reading the full text. In cases where the two authors did not agree, a third author was consulted for advice. However, no such cases occurred.

One reviewer (JN) extracted the following data from the included studies: country, design (in case of a cluster randomised controlled trial the number of clusters was reported), setting in which the intervention was executed, follow-up period for each measurement, age of the participants, number of participants, short description of the intervention (name, scope, strategy, duration), outcome measures and outcomes of the study.

Methodological quality was scored independently by two reviewers (JN and EV) using the Downs and Black checklist¹⁴ (see Table 1 for the complete lists including scoring instructions). This checklist has been developed for assessment of methodological

Download English Version:

<https://daneshyari.com/en/article/2704518>

Download Persian Version:

<https://daneshyari.com/article/2704518>

[Daneshyari.com](https://daneshyari.com)