Review of evaluation of education as a countermeasure for cyclist injury

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Search strategy

- Searches conducted in
  - Google scholar
  - Psychinfo
  - Medline

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<th>Bicycle</th>
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<td>Cycle</td>
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- Focus on peer-reviewed publications since 1990
Many reports and evaluations of “educational” interventions that have sought to promote helmet wearing (for review see Rivara et al, 1998)

Few have sought to improve other behaviours or attitudes

Few evaluations of injury outcomes

Most interventions target child cyclists
Carlin et al (1998), Australia

- “Bike Ed” aims to cover safe riding skills, traffic knowledge and skills, and basic bike mechanics
- 148 cases recruited from ED of 2 hospitals in NW Melbourne; 130 controls recruited by random telephone survey; all aged 9-14 years
- Possible negative effect (OR: 1.64 95%CI: 0.98-2.75), unaffected by adjustment for sex, age, SES, exposure
- BUT: Matching? Accuracy of information on education? Time since Bike Ed? Relevance of injuries (many off-road)?
An examination of the relationship between cycle training, cycle accidents, attitudes and cycling behaviour among children. *Ergonomics* 45, 640-648

“National Cycling Proficiency Scheme” (NCPS) includes instruction on cycle rules and control skills

336 children sampled from 2 schools, 154 reporting having taken the NCPS

Training was not associated with
- crashes (n=64)
- “safer attitudes” (e.g. concentrating properly when riding)
- “safe cycling” behaviours (e.g. give an arm signal before turning)
- “showing off behaviours” (e.g. ride through traffic lights if safe)

BUT: Self selection bias? Training was on average 4 years prior
Macarthur et al. (1998), Canada

- Evaluation of a bicycle skills training program for young children: a randomised controlled trial. *Inj. Prev* 4, 116-121
- Playground-based bicycle handling skills
- Comparison of Grade 4 children from randomly selected intervention schools and control schools
  - Straight line riding: 90% vs 88%, p=.78
  - Coming to a complete stop: 90% vs 76%, p=.23
  - Shoulder checking before turn: 0% vs 2%, p=1.00
- Conclude: “not effective in improving safe cycling behaviour, knowledge, or attitudes”
Stutts and Hunter (1990), US

- “Basics for bicycling” is an on-bike closed-course training program
- Curriculum schools compared to control schools
- Improvements in bicycle safety knowledge and riding skills, as well as helmet use
Nagel et al. (2003) US

- Educating grade school children using a structured bicycle safety program
- 351 students view video and listen to structured discussion of rules
- 251 students completed post-test at 1 month
- Improved knowledge about riding with traffic, helmet wearing, warning pedestrians, and stopping before riding onto street
- BUT: control group?
Thomas et al. (2005)

- Report: Impact of school-based, hands-on bicycle safety education approaches for school-aged children
- Several programs with on-bicycle training and 2+ encounters
- Assessed
  - Knowledge assessed before, after, and up to 1 year after
  - Riding behaviour assessed after and up to 1 year after
- Comparison with control students suggested that each program resulted in sustained improvements in
  - Knowledge
  - Reported frequency of safe-riding behaviour
Conclusions

- Existing studies not particularly supportive
- Young driver research suggests that skills training is less useful than training risk awareness
- Importance of content
- More research is needed:
  - Interventions that improve risk awareness and “shared respect”
  - Interventions for adults and motorists
  - Careful consideration of outcome measures