

EVALUATIONS OF THINKFIRST **PROGRAMS**

Compiled by
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There have been several scientific evaluations of ThinkFirst for Kids, ThinkFirst for Teens, and ThinkFirst-SportSmart programs conducted by researchers in Canada and the United States. Almost all have concluded that these programs improve knowledge and reduce risk-related behaviour. However, only long range studies lasting several years can determine whether there is a reduction in injuries attributable to a specific prevention strategy, and these are currently underway. Many of the following evaluations of the programs in Canada were conducted by Dr. Michael Cusimano, Research Director of ThinkFirst and Head of St. Michael's Hospital Injury Prevention Centre.

1. ThinkFirst For Kids (TFFK) Evaluations

1.1

Title: *Evaluation of the ThinkFirst For Kids Injury Prevention Curriculum for Primary Students*

Authors: A. Greene, P. Barnett, J. Crossen, G. Sexton, P. Ruzicka, E. Neuwelt

Published In: Injury Prevention 2002: 8: 257-258.

Study Objectives

Objectives were to conduct a three phase study to develop and test a measurement instrument, and evaluate the efficacy of the ThinkFirst for Kids curriculum in Grades 1-3 of elementary school.

Phase 1

Purpose:

To develop a testing instrument for assessing student comprehension of concepts presented in the ThinkFirst for Kids curriculum.

Methods:

The questionnaire, designed by a clinical psychologist, health and curriculum specialist, and an elementary school teacher, was developed to assess the effectiveness of the curriculum. Questions were knowledge based, administered to 870 students in 5 schools and served as the pre-test for Phase 2 of the study.

Phase 2

Purpose:

To assess the discriminatory ability of the instrument in detecting differences between the treatment and control students, and to assess evaluate the implementation process while measuring effectiveness of the ThinkFirst for Kids curriculum.

Methods:

Questionnaires were administered to 550 students in the treatment group and 320 students in the control group.

Results:

- An improvement was found in several of the instruction units.
- Scores decreased in the sports and playground unit.
- No changes in behaviour regarding bike helmet use was found.
- Pre-test scores indicated that 95% of students reported having access to bicycle helmets, and 75%-90% of students reported they always wore their bicycle helmet.

Phase 3

Purpose:

To evaluate the effectiveness of the ThinkFirst for Kids curriculum overall.

Methods:

Test items for the pre- and post-test were scored as the percentage of correct answers given by each classroom. Items were grouped by grade, socioeconomic status matched treatment and control schools, and/or into the six instruction areas.

Results:

- No significant differences were observed for pre-test scores, between the control and treatment groups.
- After the 6 week study, the mean scores for treatment schools significantly increased in comparison to the control schools.

Overall Results

- The 6 week ThinkFirst for Kids Curriculum significantly increased knowledge for students in grades 1, 2, and 3 overall and within most of the individual units.
- A significant correlation between socioeconomic status (SES) and score improvement was found, with a greater effect on scores associated with lower SES schools.

Discussion

- This study provided education, created awareness and highlighted the importance of early intervention.
- ThinkFirst for Kids was successful in changing knowledge about the prevention of brain and spinal cord injuries among first, second, and third grade students.

1.2

Title: *Partnering for Injury Prevention: Evaluation of a Curriculum-Based Intervention Program Among Elementary School Children*

Authors: L. S. Gresham, D. L. Zirkle, S. Tolchin, C. Jones, A. Maroufi, J. Miranda

Published In: Journal of Pediatric Nursing 2001; 16(2): 79-87.

Study Objectives

Objectives were to: determine the impact of the ThinkFirst for Kids (TFFK) injury prevention program on reducing high-injury risk behaviour and enhancing knowledge about safety behaviours, the brain and spinal cord, among a racially and ethnically diverse elementary school population.

Methods

- A randomized pre-test and post-test design was used for this study.
- Data was collected within the classroom setting for the intervention and control schools.
- Sixteen schools were identified as study sites, with eight schools randomly selected to receive the intervention, and seven of the remainder eight schools to be the control group.

Results

- Provincial learning objectives related to safety and safe behaviours in the area of health and physical education were covered by TFFK.
- Learning objectives in other areas such as mathematics, language arts, social studies and science, were also reinforced by the program.

Conclusion

- TFFK is a valuable educational tool that can be implemented into existing provincial curricula across Canada.
- This program meets several provincial health and physical education curricular safety requirements.

1.3

Title: *Curricular mapping of the thinkfirst for Kids Program for Provincial Curricula in Canada (Abstract)*

Authors: C. Rodriquez, J. Patterson, M. Cusimano

Journal: The Canadian Journal of Neurological Sciences 2001; 28 (Suppl. 2): S64.

Study Objectives

Objectives were to: evaluate the extent to which the ThinkFirst for Kids program covers the learning outcomes and objectives required by provincial education ministries.

Methods

Documents regarding curriculum requirements for each province were collected. Correlations between the TFFK program and the individual provincial curriculum requirements were assessed using a qualitative content analysis. Although health and physical was the primary study focus, possible cross-curricular overlap in other subject areas was examined.

Results

- Provincial learning objectives related to safety and safe behaviours in the area of health and physical education were covered by TFFK.
- Learning objectives in other areas such as mathematics, language arts, social studies and science, were also reinforced by the program.

Conclusion

- TFFK is a valuable educational tool that can be implemented into existing provincial curricula across Canada.
- This program meets several provincial health and physical education curricular safety requirements.

1.4

Title: *Injury Prevention in the Community: An Evaluation of the Think First for Kids Program (Abstract)*

Authors: M.D. Cusimano, A. Sharman, R. Coulthard, M. Chipman, B. Freedman, C. Tator

Published In: The Canadian Journal of Neurological Sciences; August 2000; 27(Suppl. 2): S22

Study Objectives

The purpose of this study was to evaluate the effectiveness of the Think First for Kids Program (TFFK) given to children in grades 1,2, and 3.

Methods

- 584 “active” students (25 classrooms) were given tests to assess knowledge and behaviour before and after the delivery of the TFFK program.
- Tests were also administered to 596 “monitoring” students (27 classrooms) before and after a six-week time period where the program was not administered.
- Questionnaires were also administered to teachers and parents in both types of schools to assess the degree to which the program was implemented.
- Outcome measures assessed were increase in safety knowledge, change in safety behaviour, and injury outcomes in children.

Results

- No differences in baseline scores were observed between the two groups.
- Students who received the TFFK program showed a significant improvement in knowledge in comparison to the control group.
- Preliminary results (presented in November, 2005), which were based on the analysis of individual students, indicated that safety knowledge was gained, increased, and retained over time.
- Behavioural intentions toward safe decisions increased in TFFK program schools in comparison to schools not using the program.
- Unsafe decision making did not improve.

Conclusions

- Results indicated that the TFFK program was successful at improving knowledge of safe practices and behaviours.
- Change in students’ daily behaviour were more common in TFFK Curriculum Schools compared to Regular Curriculum schools.
- Safety concern was a major factor behind children’s safe decisions. Results indicated that habit was a major factor behind unsafe decision making.
- TFFK, at an early age, has positive effects on learning, with its impact extending far beyond the classroom setting.
- TFFK is evidence-based, and represents “best practice.”

Future work

- Children who participated in this study will be assessed longitudinally to examine the impact of safety education on reducing injury rates.
- A cost-benefit analysis will be conducted to examine the cost effectiveness of implementing this education program versus other education programs.
- Implications for school based injury prevention will be assessed.

1.5

Title: *ThinkFirst! – Are There Such Things As “Accidents”?*

Authors: A. Sharman, M.D. Cusimano

Published In: OPHEA Journal; Winter 2000: 26-27

Program Description

ThinkFirst for Kids (TFFK)

- Addresses major causes of traumatic injury that pose a significant risk to children.
- Based on modern learning educational and behavioural concepts.
- Program purpose is to enhance knowledge of injury prevention mechanisms and risk-perception, which will prevent avoidable types of occurrences that produce injury or reduce the severity of injury.
- Consists of lessons, and take-home exercises and activities which reinforce messages learned by the children in school and provide a tool for learning.

Program Evaluation

- In 1998/1999, the program was implemented into 800 schools across the nation.
- 85% of teachers rated the program as “very good” to “excellent”
- Teachers found the program to be functional and versatile.
- Program was well organized, use-friendly, and easily applicable to many subject areas.
- 75% of the schools who received the program implemented it the same year it was received.
- 71% of the schools that received the program, but did not implement it the year it was received, expressed their intention to implement the program in the upcoming year.
- Teachers found the kids to be very responsive to the “peer to peer” approach used in the curriculum.
- The activities, worksheets, video, teacher background information, lesson plans and parental information were considered to be very helpful.

2. ThinkFirst For Teens (TFFT) Evaluations

2.1

Title: *An Evaluation of ThinkFirst Saskatchewan: A Head and Spinal Cord Injury Prevention Program*

Author: M.L. Wesner

Published In: Canadian Journal of Public Health 2003;94(2): 115-120.

Study Objectives

Objectives were to: (a) identify youth behaviour with respect to injury prevention; (b) assess awareness of severity and susceptibility to brain and spinal cord injury; and (c) evaluate the impact of ThinkFirst Saskatchewan school visit program on students' knowledge of brain and spinal cord injury prevention.

Methods

Self-report questionnaires were administered to 1,257 grade 6 and 7 students both before and after the school visit program. The questionnaires were used to measure student demographics, risk-taking behaviour, and general knowledge of causes, susceptibility and prevention of brain and spinal cord injury. Teachers distributed the questionnaire one week before and two weeks following the school visit.

Results

- Saskatchewan students participate in risk taking behaviours, often without appropriate protective equipment.
- The ThinkFirst program visit was effective at enhancing the knowledge and behaviour of students pertaining to injury prevention and high-risk activities.
- An increase in the reported use of protective sporting equipment was found following the school program visit.
- No difference in risk-taking behaviour between male and female students was found.

Discussion

- ThinkFirst Saskatchewan school visit program significantly enhances youth knowledge pertaining to injury prevention.
- The impact of the program on knowledge retention, behaviour change, and decline in brain and spinal cord injury requires further investigation.

2.2

Title: *Injury Prevention Programs: Do They Really Make a Difference?*

Authors: P. Warnell

Published In: AXON 1997; September Issue: 6-9

Study Objectives

Objectives were to: (a) profile three Toronto Injury Prevention programs: The Party Program, The Heroes Program, and the ThinkFirst Program; (b) describe the historical development, infrastructure, content, setting, format, and intended audience of each program; (c) compare each program; and (d) address outcome measures.

Program Comparison

- Each program targets adolescents as their audience for injury prevention messages. **ThinkFirst** also extends their injury prevention message to senior elementary school students.
- In terms of setting, PARTY program is a hospital based program, whereas both SMARTRISK Foundation and **ThinkFirst Foundation** extend their programs into the community.
- Presentation content is similar across programs, with the testimonials of brain and spinal cord injury survivors as an integral component of the presentation.
- PARTY program and **ThinkFirst** use health care professionals knowledgeable in the areas of brain and spinal cord injury to relay information. Heroes use peer counselors for this purpose.
- Both **ThinkFirst** and Heroes use a high-quality video and slide presentation to convey their messages. PARTY program relies on video and slide presentations the least, with a slide show done by a paramedic on pre-hospital care as the exception.
- Each program provides a reinforcement piece. This is effective for facilitating behaviour change. Transforming cognitive change into attitudinal or behavioural change is a problem and challenge in the injury prevention field.
- All programs provide an evaluation component. The PARTY program's is the most extensive.
- All of these programs are helping increase awareness about injury prevention.

Summary

The content and approach of each program is similar, but each was found to be unique in several ways.

2.3

Title: *Evaluation of the Think First head and spinal cord injury prevention program*

Authors: M. Wright, F.P. Rivara, D. Ferse

Published In: Injury Prevention 1995; 1:81-85

Study Objectives

Objectives were to: evaluate the impact of the ThinkFirst head and spinal cord injury prevention program on knowledge, attitudes, and behaviour of 11-15 year old students toward injury risks and preventative strategies.

Methods

- Questionnaires were administered at three junior high and three senior high schools in rural and urban areas of Washington State.
- The purpose of the questionnaire was to assess knowledge, attitude and self reported behaviour change associated with the ThinkFirst Program.
- The questionnaire was administered by the classroom teachers to the students before the intervention, two weeks and three months after the intervention.
- 663 questionnaires were completed before the intervention, 609 at the two-week follow-up, and 248 at the three-month follow-up.
- 78 students acted as a control group, and completed the measure at both assessments.
- Observations were made of students as they left school property to determine bicycle helmet and seat belt use.

Results

- No significant changes in attitude between the baseline and follow-up assessments.
- Some significant differences were found in knowledge between the initial and follow-up assessments, but the differences were small.
- Helmet use could not be accurately assessed given the small number of students that rode bicycles to school.
- No consistent change in seat belt use was found.

Conclusion

The ThinkFirst program had little impact on changes in knowledge, self-reported behaviour, or observed behaviour.

3. ThinkFirst-SportSmart Evaluations

3.1

Title: *Prevention of spinal cord injuries caused by diving: Evaluation of the distribution and usage of a diving safety video in high schools*

Authors: V.M. Bhide, V.E. Edmonds, C.H. Tator

Published In: Injury Prevention 2000; 6: 154-156.

Study Objectives

To determine and assess the distribution and use of Sudden Impact by schools in Ontario.

Methods

Questionnaires were sent to 92 public secondary schools in the six boards of education in the Toronto region. The questionnaire addressed the following items: the frequency of use of the video in the 1994-95 school year; accessibility; the number of students who saw it, their grades; and how and where the video was used.

Results

- The response rate was 64% (59 schools) of whom 80% were aware of the video, and of these, 76% reported their school received it.
- 91% (41 schools) of schools that received the video reported using it.
- 80% of schools showed it to grade 11 students.
- 80% of schools with swimming pools used the video in comparison to 42% of schools without pools.
- The Leader's Guide was used by 46% of schools for teacher preparation and to facilitate classroom discussion.
- Feedback from students indicated that they were moved by the message of the video and would be more careful in the future, and that the myth of "this injury cannot happen to me" was dispelled by watching the video.
- The video was very effective in simulating class discussion about the causes, nature, and severity of such injuries.
- A frequent criticism was that the video did not feature members of ethnoracial minorities.

Discussion

- Nearly all school that received Sudden Impact used it, indicating that this method is effective for providing prevention materials to schools; The system for distribution needs improvement.

3.2

Title: *Evaluation of the ThinkFirst Canada, Smart Hockey, brain and spinal cord injury prevention video*

Authors: D.J. Cook, M. D. Cusimano, C.H. Tator, M.L. Chipman

Published In: Injury Prevention 2003; 9(4): 361-366.

Study Objectives

Objectives were to evaluate knowledge transfer and behavioural outcomes in 11-12 year old hockey players who viewed the Smart Hockey: More Safety, More Fun! video.

Methods

- A randomized control design was used for this study.
- Subjects were 34 Atom "A" competitive level teams in the Greater Toronto Hockey League, 11-12 years old, and hockey team coaches.
- Players were randomly assigned to an experimental (n=45) or control group (n=30).
- Smart Hockey was shown to the experimental group at mid-season.
- The experimental group was assessed for concussion knowledge before, immediately after, and three months after watching the program. The control group was assessed for concussion knowledge at the same time periods, but did not view the video.
- The incidence of aggressive penalties was measured before and after watching the video.

Results

- The experimental group showed a significant improvement in concussion knowledge after watching the program, which was maintained 3 months after seeing the program. The concussion group did not improve in concussion knowledge.
- No significant changes in the total number of penalties per game were observed between groups.
- A significant decrease in cross checking and checking from behind penalties was observed in the experimental group after watching the video.

Conclusion

- Study showed improvements in knowledge and behaviours after a single viewing of the Smart Hockey video.

3.3

Title: *Smart Hockey Evaluation – Winning at all costs: Barriers to Injury Prevention Knowledge Transfer in Minor League Hockey in Canada*

Authors: M. D. Cusimano, R. Volpe, P. Donnelly, C.H. Tator, M.L. Chipman

Final Report: Ontario Neurotrauma Foundation

Study Objectives

Objectives were to evaluate the effect of Smart Hockey on player knowledge and behaviour and study the cultural issues in hockey which may facilitate or impede the use of interventions aimed to prevent injury and to determine whether the video and its evaluation lead to any cultural changes amongst players, coaches, parents and hockey officials.

Methods

- 8 Atom AA teams, 5 Bantam AA teams, 6 Atom house league teams, and 6 Bantam house league teams participated in the evaluation.
- 400 players, coaches, parents and hockey officials across the Greater Toronto Area participated in the evaluation.

Results

- Exposure to the program resulted in an improvement in knowledge of concussion immediately after watching the video.
- Knowledge about concussion decayed to levels similar to those prior to watching the program two months after exposure to the program.
- Teams exposed to Smart Hockey showed fewer penalties and penalty minutes in comparison to those who had not seen the program.

Conclusion

- This program provides useful information for policy change.
- Exposure to the program can significantly improve knowledge at the atom and bantam levels.

4. Internet Evaluation-ThinkFirst Website

4.1

Title: *The Availability and Accessibility of Internet Resources to Supplement Injury Prevention Education (Abstract)*

Authors: T. Sibbald, C. Rodriguez, D. Isaac, M. Cusimano

Published In: The Canadian Journal of Neurological Sciences 2001; 28 (Suppl. 2): S60.

Study Objectives

Objectives were to: determine the availability, accessibility and quality of free Internet resources related to injury prevention.

Methods

An internet search was performed using 15 search engines. Fifty-four searches were conducted using strings such as: sports, bicycle, promotion, information, Ride Safe, kids, safety, child, playground, cycling, teach, brain, vehicular, water, anatomy, biology, seatbelt, spinal cord, bus, car, **ThinkFirst**, and brochure.

Results

- 16 resources were identified and organized into the following categories: brain and spinal cord (n=1), vehicular safety (n=2), bicycle safety (n=5), violence (n=1), sports and recreational safety (n=1), water safety (n=2), and those covering multiple safety areas (n=4).
- Seven of the resources are for children, six for guardians, and three for teachers.
- Nine of the resources have been recently updated.
- Public institutions sponsor 13 of these resources, whereas the rest are privately sponsored.

Conclusion

- Injury prevention resources for youth are available and should be widely accessed by the population working in this field.