

Principles of Injury Prevention

Gary A. Smith, MD, DrPH

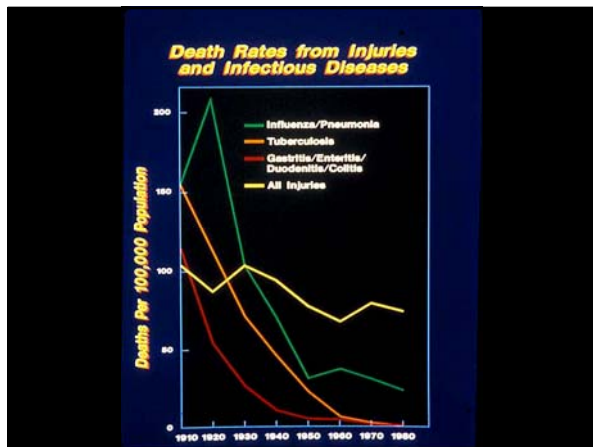
Center for Injury Research and Policy
Nationwide Children's Hospital
Columbus, Ohio, U.S.A.



Our mission is of the highest and the noblest kind, not alone in curing disease but in educating the people in the laws of health, and in preventing the spread of plagues and pestilence.

Sir William Osler (1849-1919)

Injuries are the leading cause of death and acquired disability among children and young adults in the United States



Definition of Injury

Tissue damage due to the transfer of energy or the absence of essentials, such as oxygen and heat

- Energy may be kinetic, thermal, chemical, electrical or radiation
- Exposure may be acute or chronic

Injury Scenario

A child rides his non-powered scooter into the street and is struck by a car



Focusing on guilt, blame, and fault does not lead to effective prevention.

Examples: “Consumer misuse” or “Manufacturer negligence”

Focus on the cause of the injury...

Energy transfer!

Bicycle helmets are up to 85% effective in preventing head injuries.



OHIO COALITION FOR BICYCLE SAFETY

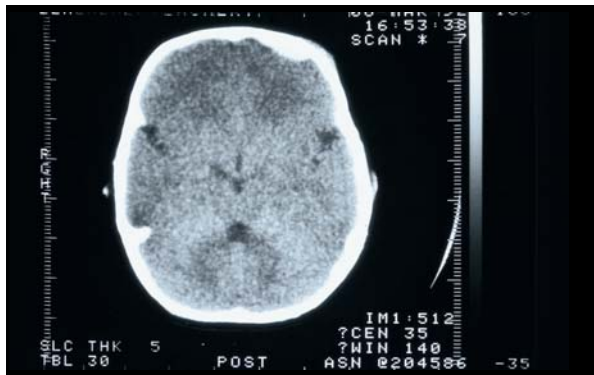




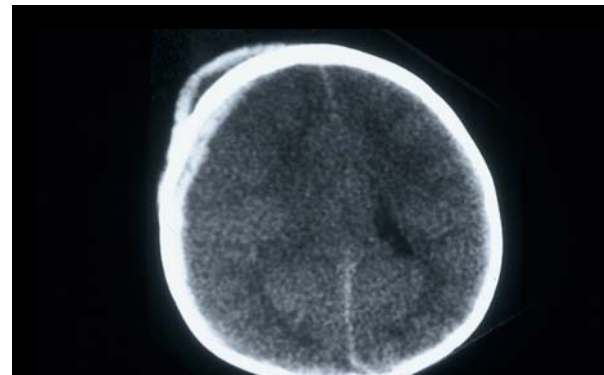
Babywalker-Related Injuries

- 271 children treated in Nationwide Children's Hospital Emergency Department, 1993 - 1996
- 9.6% with skull fractures
- 3 children with intra-cranial hemorrhage
- 96% from a fall down stairs
- 69% with adult supervision at time of injury

Source: Smith GA. *et al. Pediatrics* 1997; 100 (2):e1-5



Frontal epidural hemorrhage with skull fracture
9 month old in babywalker fell down 10-12 basement steps onto concrete



Frontal fracture and subdural hemorrhage with mass effect (GCS=3)
10 month old in babywalker fell down 8 steps onto concrete

Baby walkers ripped

Doctor says study shows injuries are commonplace

By Mark D. Somerson
Dispatch Medical Reporter

It took only seconds for Tyler Bowen to become a statistic.

In 1994, when Tyler was 11 months old, he tumbled down 12 basement steps in his baby walker.

"My older son had just come up the stairs and left the door open for one second," said Tyler's mother, Melissa Bowen of Westerville. "My mom was there, we were making dinner. We watched the whole thing in slow motion."

According to a new study by a Children's Hospital emergency room physician, most children injured in walkers are being supervised at the time — and many end up back in a walker.

Dr. Gary A. Smith, director of emergency medicine at Children's, said he detests baby walkers. He and other emergency room staff there treat a walker-related injury about every four days.

"Parents come in and say, 'I just turned my head for a moment,'" Smith said. "There isn't a parent out there who can watch a child 100 percent of the time."

Jeff Hinchley / Dispatch

Dr. Gary A. Smith, director of emergency services at Children's Hospital, and a baby walker.

Please see WALKERS Page 2A

STATIONARY ACTIVITY CENTER



- Introduced into the U.S. market in 1994
- Resembles a babywalker, but does not have wheels
- Allows child to revolve, rock, and bounce

REVISED ASTM F977

Revisions to ASTM F977 were made in 1996, and apply to babywalkers manufactured after June 30, 1997

Babywalkers must meet one of two requirements:

1. Too wide to fit through a standard 36" doorway
2. Have features to stop walker at edge of a step

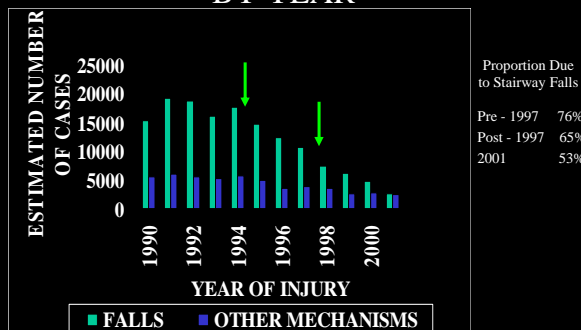


BABYWALKER-RELATED INJURIES 1990-2001

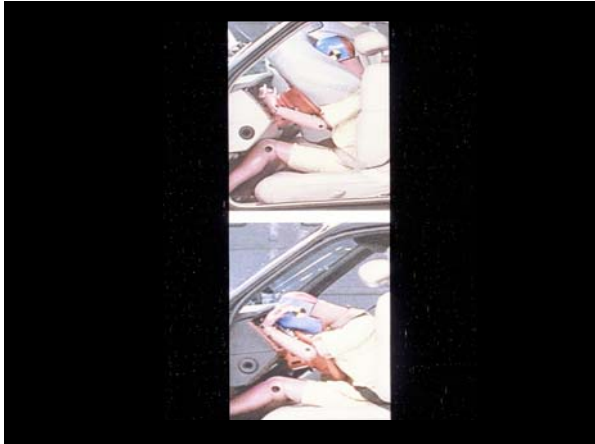


- Average of 23,000 cases per year from 1990-1994
- Decrease in number of injuries 1995-2001
- 76% decrease from 1990-2001

STAIRWAY FALLS VERSUS OTHER INJURY MECHANISMS BY YEAR



The injury can be prevented without preventing the event

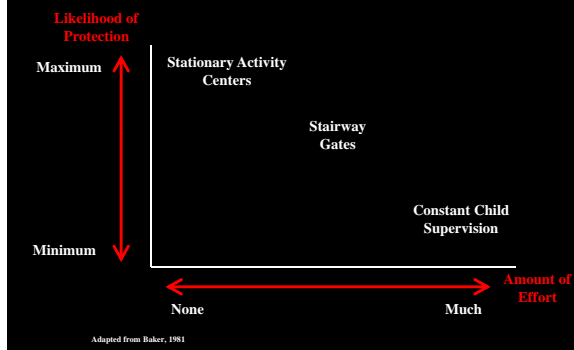


Active versus Passive Prevention Strategies

Active versus Passive

- **Diarrhea**
 - Boil water before each use
- **Diarrhea**
 - Sewer treatment facilities
 - Potable water systems
- **Playground Falls**
 - Supervise child constantly
- **Playground Falls**
 - Protective surfacing
 - Lower equipment height

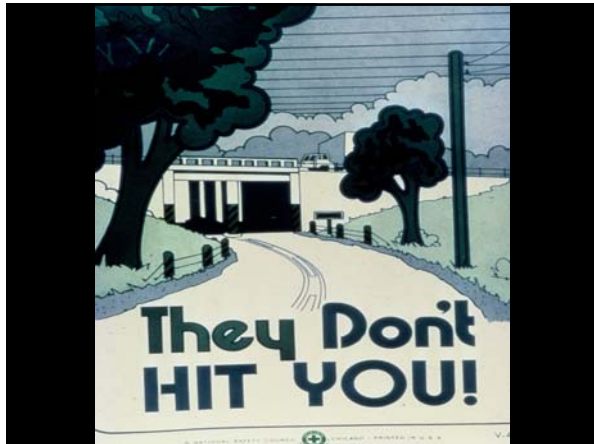
To Protect a Child from Babywalker-Related Injury



Frequent Booster Shots!!!

Myth

Warnings alone are effective in preventing injuries



Axioms of Injury Prevention

- Choose passive protection rather than active strategies when possible
- Look for weakest link in the causal chain
- Choose active strategies that have been evaluated and shown to work
- Choose passive protections for people at greatest risk of being injured
- Increase incentives and reduce disincentives for adoption of prevention strategies
- Combine countermeasures

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<http://www.injurycenter.org>