

## All-Terrain Vehicles: Two-, Three-, and Four-Wheeled Unlicensed Motorized Vehicles

### TWO-WHEELED VEHICLES

Miniature motorcycles intended for off-road use by children and adolescents have enjoyed wide popularity since the 1960s.<sup>1</sup> Manufacture of these small two-wheeled motor vehicles is not regulated by any federal motor vehicle safety standards. Neither the rider nor the vehicle are required to be licensed. Some of these vehicles are small enough for a 4-year-old child and many are intended for use by school-aged children.<sup>2</sup>

*Minibikes*, weighing less than 45 kg (100 lb), are the smallest and most primitive of these vehicles. The more sophisticated minicycles are constructed to resemble miniature motorcycles. Trailcycles are larger than minicycles and have power and design characteristics that make them suitable for rough terrain. All of these vehicles have a short wheelbase and a low profile; thus, they are relatively unstable and poorly visible.<sup>3</sup>

#### Injuries

In 1978, there were approximately 19,000 motorbike-related injuries treated in emergency rooms. Nearly half of these injuries were attributed to accidents involving the minibike (US Consumer Product Safety Commission, news release, Aug 27, 1979). In 1982, there were an estimated 12,000 children 14 years of age and younger who suffered minibike- and trailbike-related injuries (National Electronic Injury Surveillance data, National Information Clearing House, US Consumer Product Safety Commission, 1985). Since 1980, the Consumer Product Safety Commission has collected at least 24 death certificates that implicate minibikes and trailcycles. Half of those who died were children 14 years of age or younger.

Children often use these vehicles illegally on roadways. Injury typically results from falls or col-

lisions with fixed objects or other motor vehicles. In addition, injury may occur by body contact with the drive train or the exhaust system.<sup>1</sup> Laryngotracheal trauma may result from driving across open fields into poorly visible wire fences.<sup>4</sup>

The necessary skill and judgment for safe motor vehicle operation is often lacking in children and adolescents.<sup>5</sup> Given individual variation, it is not possible to establish a specific age at which children are capable of safe handling of these or any other motorized vehicles.

#### Recommendations

Pediatricians should counsel parents regarding the inherent hazard of motor vehicle use by children. The use of unlicensed two-wheeled motorized cycles, particularly by children less than 14 years of age, should be discouraged. Outdoor recreation that is developmentally more appropriate for a child's size and skills should be encouraged.

Pediatricians should provide safety guidelines for parents who (despite our discouragement) allow their children to ride these vehicles: (1) Vehicles should be sturdy and stable; quality construction is essential. (2) Riders should receive instruction from a mature experienced cyclist. (3) Riding should be supervised and allowed only after the rider has demonstrated competence in handling the machine on familiar terrain. (4) Riders should wear approved helmets and protective clothing (trousers, boots, gloves, etc). (5) Roadway and nighttime riding should not be allowed.

Pediatricians should promote the development and adoption of state and federal safety regulations to govern the manufacture and sale of these vehicles.

Riders should be required to hold licenses based on demonstrated competence.

### THREE- AND FOUR-WHEELED VEHICLES

All-terrain vehicles are motorized recreational cycles with three (and sometimes four) large soft

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tires. These vehicles are designed for off-the-road use on a variety of terrains.

Although all-terrain vehicles have been in use in this country for 15 years, they have only recently reached enormous popularity, particularly among the young. With estimated sales for 1985 of 780,000, there will be approximately 2.5 million vehicles in use. Accompanying this widespread use is an alarming increase in morbidity and mortality. Although all-terrain vehicles give the appearance of stability, the three-wheeled design is unstable, especially on hard surfaces. Stability is further compromised by virtue of the high center of gravity. The hazard is compounded by the fact that all-terrain vehicles can achieve substantial speeds (as much as 30 to 50 mph). Moreover, their use by children has been promoted.<sup>6</sup>

### Injuries

The majority of injuries associated with all-terrain vehicles occur when the driver loses control, the vehicle rolls over, the driver is thrown off the vehicle, or the driver collides with a fixed obstacle. Children are often injured when they are struck by a fence wire or tree branch while traveling at a high speed. In a recent study of three-wheeled all-terrain vehicles in Alaska,<sup>7</sup> risk factors were found to include intoxication with alcohol, excessive speed, lack of proper protective helmet usage, and rider inexperience.

From 1984 to 1985, annual emergency room treatments of injuries related to all-terrain vehicles are estimated to have increased from 63,900 to 85,900. Records indicate that 30% of injuries have occurred in those 5 to 14 years of age; two thirds of the injured are less than 25 years. In the past 5 years, there have been more than 559 deaths; more than 40% of the dead were children 16 years of age or younger (Consumer Product Safety Commission, news release, April 1985, and Safety Alert, June 1986). Spinal cord injuries resulting in quadriplegia and paraplegia have also been reported.<sup>8</sup>

### Recommendations

The Committee on Accident and Poison Prevention recognizes all-terrain vehicles as a new major hazard to the health of children. Accordingly, the Committee supports the July 1986 House of Representatives, Committee on Government Operations' recommendations to the Consumer Product Safety Commission that they issue a recall of three-wheeled all-terrain vehicles presently in use and place a ban on the future production of these instruments, unless an acceptable safety standard can

be promulgated to deal with the hazard these vehicles present.<sup>9</sup>

While awaiting the Consumer Product Safety Commission's response to this requested recall and ban, the AAP makes the following recommendations:

Manufacturers should call a voluntary *moratorium on the sale of new all-terrain vehicles for recreational use* until engineering improvements can assure greater safety.

Pediatricians should make parents aware that the appearance of the all-terrain vehicle's safety is deceptive. The safe use of these vehicles requires skill, judgment, and experience. Their use by children less than 14 years of age should be prohibited.

Pediatricians should help parents to protect their children by choosing *other recreations* that are developmentally more appropriate than the operation of motorized vehicles.

All-terrain vehicles should only be used in *daylight* and should never be driven after drug or alcohol use. These vehicles should not be used on *unfamiliar terrain*, nor should they be used on public roadways. All-terrain vehicles should not carry more than *one person* at a time.

Riders should always *wear helmets* and protective clothing. Drivers should be required to hold licenses based on demonstrated competence.

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### REFERENCES

1. US Consumer Product Safety Commission, Bureau of Epidemiology: *Hazard Analysis of Mini-Bike Related Injuries*. Government Printing Office, November 1974

2. Berger LR: Childhood injuries: Recognition and prevention. *Curr Prob Pediatr* 1981;12:1-59
3. Rivara FP: Minibikes: A case study in underregulation, in Bergman AB (ed): *Preventing Childhood Injuries*, Report of the 12th Ross Roundtable on Critical Approaches to Common Pediatric Problems. Columbus, OH: Ross Laboratories, 1982, pp 61-63
4. Alonso WA, Caruso VG, Roncace EA: Minibikes, a new factor in laryngotracheal trauma. *Ann Otol* 1973;82:300
5. Rivara FP, Berger LR: Petition for the issuance of consumer product safety rules for unlicensed two-wheel motorized vehicles, October 25, 1978. Files under section 10 of the Consumer Product Safety Act of 1978, 15 USC §2059
6. Golladay ES, Slezak JW, Mollitt DL, et al: The three wheeler—A menace to the preadolescent child. *J Trauma* 1985;25:232-233
7. Centers for Disease Control: Injuries associated with three-wheel all-terrain vehicles, Alaska. *MMWR* 1985;34:213-215
8. Sneed RC, Stover SL, Fine PR: Spinal cord injury associated with all-terrain vehicle accidents. *Pediatrics* 1986;77:271-274
9. *Consumer Product Safety Commission's Response to Hazards of Three-Wheel All-Terrain Vehicles*. Fortieth Report by the Committee on Government Operations, based on a study by the Commerce, Consumer, and Monetary Affairs Subcommittee, July 1986. Government Printing Office, 1986.

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*Pediatrics* 1987;79:306

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## All-Terrain Vehicles: Two-, Three-, and Four-Wheeled Unlicensed Motorized Vehicles *Pediatrics* 1987;79:306

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