CENTERS FOR DISEASE CONTROL

March 25, 1988 / Vol. 37 / No. 11

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Softball Sliding Injuries — Michigan, 1986-1987

During the period 1986–1987, a study of the use of break-away bases to reduce sliding injuries was conducted in Ann Arbor, Michigan (*1*). The break-away base that was used in the study is anchored by rubber grommets to a rubber mat that is flush with the infield surface. The mat is anchored to the ground by a metal post similar to that used with standard stationary bases. Seven hundred foot-pounds of force, or one-fifth the force needed to dislodge a stationary base from its mooring, is required to release the break-away portion of the base.

The study evaluated injuries sustained during 633 games on two fields with break-away bases and 627 games on six fields with stationary bases. The players were college students, laborers, executives, physicians, and others ranging from 18 to 55 years of age. Players were assigned to one of four leagues on the basis of skill level and experience. Teams were assigned to playing fields on a random and rotating basis. All fields were maintained in the same manner.

All injuries requiring a player to leave the game were documented by the umpires. Local hospital emergency rooms, the University of Michigan Student Health Service, and private practice orthopedic surgeons were asked to keep logs of patients seen with softball-related injuries. All persons identified by these three surveillance systems were contacted to see whether their injuries had occurred while sliding. Patients who had been playing on the study fields were included in the analysis.

During the study period, there were 45 sliding injuries on the fields with stationary bases (7.2/100 games) and two sliding injuries on the fields with break-away bases (0.3/100 games) (rate ratio = 22.7; 95% confidence intervals, 5.6 to 71.4). Forty-three of the 45 injuries to players sliding into stationary bases involved the lead foot or hand. Twenty-four of the 45 injuries were ankle injuries; five were skin abrasions; five were knee injuries; three were finger fractures; and eight were from other causes. Medical charges for these 45 players were approximately $55,050 ($1,223/injury). The two injuries involving break-away bases comprised a nondisplaced medial malleolar ankle fracture and an ankle sprain. The total medical expense for these two players was approximately $700 ($350/injury).

Injuries — Continued

Reported by: DH Janda, MD, EM Wojtys, MD, FM Hankin, MD, ME Benedict, MA, Univ of Michigan, Ann Arbor, Michigan. Epidemiology Br, Div of Injury Epidemiology and Control, Center for Environmental Health and Injury Control, CDC.

Editorial Note: In 1986, the National Electronic Injury Surveillance System of the U.S. Consumer Product Safety Commission estimated that 361,552 baseball-related injuries were treated in emergency rooms in the United States (*2*). This figure probably underestimates the actual number of injuries. The Amateur Softball Association of America estimates that 32 million individuals participate in softball leagues and that teams consist of an average of 15 persons and play approximately 22 games per year (unpublished data). Based on these data, it may be further estimated that about 23 million softball games are played annually in the United States.

Studies of recreational softball injuries have found that base sliding is responsible for 35% to 71% of injuries occurring during play, including abrasions, sprains, ligament strains, and fractures (*3,4*). These injuries are caused by the impact of rapid deceleration against stationary bases. Methods suggested to reduce base-sliding injuries have included prohibiting sliding, offering better instruction on sliding techniques, using recessed bases, and using quick-release bases (*4,5*). Prohibiting base sliding would be effective but might be met with resistance from some fans and participants. Holding instructional clinics on proper sliding techniques is a possibility for school-related organizations; however, this method might be impractical for community-based teams.

The prospective study in Michigan suggests that modifying the bases can alter the pattern and frequency of sliding injuries. If the stationary-base sliding injury rate of 7.2/100 games and the cost per injury of $1,223 reported in the study are representative, then approximately 1.7 million sliding injuries occur annually at a cost of over $2 billion. Similar calculations indicate that exclusive use of break-away bases would reduce injuries to just over 70,000 (a 96% reduction) and medical costs to $24 million (a 99% reduction).

The umpires indicated that break-away bases did not significantly delay play, even though sliding players dislodged the bases up to six times per game. Properly seated bases did not detach during routine base running, and the umpires did not have difficulty with judgment calls when the bases released. The bases were durable and easy to replace and lasted both seasons.

The use of break-away bases in recreational softball leagues might provide a significant, cost-effective reduction in softball injuries from sliding. However, injuries may still occur from runners' errors in judgment, improper sliding technique, poor timing, inadequate physical conditioning, and alcohol consumption.

References

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