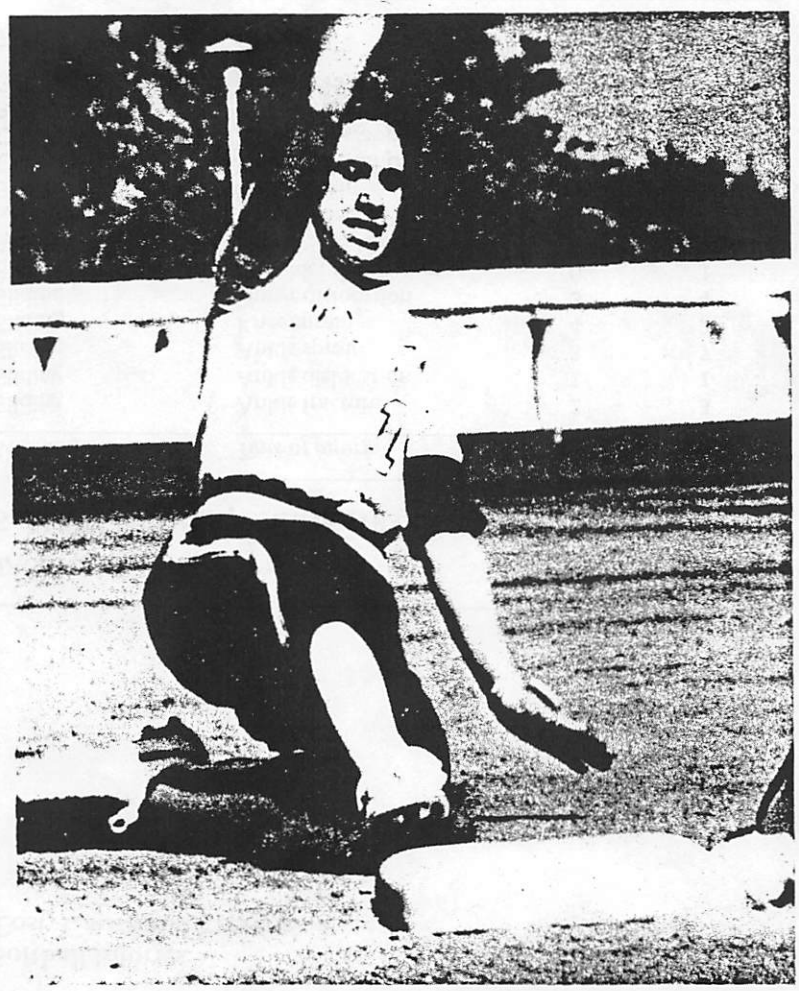
Softball Injuries: Cost, Cause and Prevention

DAVID H. JANDA, M.D., FRED M. HANKIN, M.D. and EDWARD M. WOJTYS, M.D.
Section of Orthopedic Surgery, University of Michigan Medical School, Ann Arbor, Michigan

An estimated 40 million Americans, from children to senior citizens, participate in organized softball leagues. Unfortunately, many who play the sport are out of shape and prone to injury. Although data on softball-related injuries have not been collected nationwide, it is obvious that injuries are common.



Causes of Injuries

Base running and sliding probably account for the majority of significant injuries that occur in softball players. We conducted a retrospective review of community and hospital records to identify the causes and types of injury occurring among the thousands of league participants in Ann Arbor, Mich. The data revealed that sliding was by far the most common cause of injury (*Table 1*).

Base sliding injuries result from several mechanisms. The shearing force of the infield surface against the skin can result in full- or partial-thickness burns of the skin. The upper and lower extremities, the chest and the buttocks are most vulnerable to this type of injury. The rapid deceleration that occurs with sliding into a base can result in contusions, fractures, sprains or ligamentous injuries of the foot or hand. Twisting of the flexed knee while sliding can produce meniscal and ligament derangements, patellar subluxations and osteochondral fractures.

Costs of Injuries

Although severe injuries from base sliding, such as ankle fractures or scapholunate ligament dissociations, occur infrequently, the costs of medical treatment can be staggering. Even a minor injury such as an ankle sprain can add up to substantial costs. If a fracture is sustained and surgery is required, the cost can escalate 20-fold. The estimated average cost of an ankle sprain is $250, but if hospitalization and operative intervention are required for a fracture dislocation, the cost can easily

TABLE 1.

Softball Injuries Reported in 1983 and 1984*

Mechanism	*Type of injury*	*1983*	*1984*
Sliding	Ankle fracture	2	3
Sliding	Ankle dislocation	1	1
Sliding	Ankle sprain	3	7
Sliding	Knee sprain	4	3
Sliding	Finger dislocation	3	4
Sliding	Shoulder dislocation	0	1
Sliding	Lacerations/abrasions	6	4
Sliding	Closed head injury	1	4
Sliding	Wrist sprain	3	2
Collision	Finger dislocation	6	2
Collision	Lacerations/abrasions	3	1
Fall	Knee sprain	4	3
Fall	Ankle sprain	2	0
Total		*38*	*35*

* *—Figures are based on a review of hospital records in Ann Arbor, Mich.*

exceed $5,000. The average time lost from work following internal fixation of an ankle fracture is 10 days, but for certain jobs, it may be necessary for the employee to take sick leave for two to three months. Thus, even if company-paid insurance premiums are excluded, the costs to the employer can be significant.

Preventive Measures

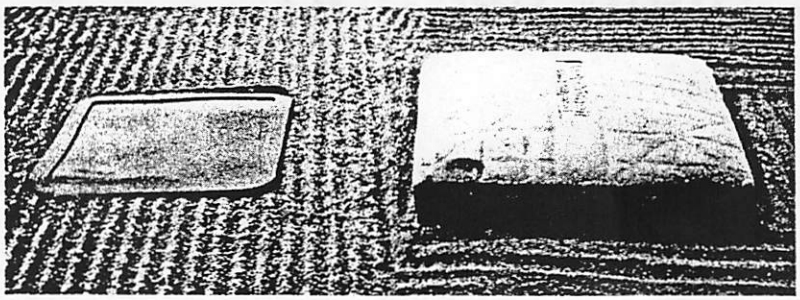
Suggested ways to reduce the number of injuries occurring in softball players include the abolition of sliding, better instruction on sliding techniques and the use of quick-release bases. Another, more viable option would be to have recessed bases for all bases rather than only for home plate.

The rule book of the Amateur Softball Association of America states that bases may be up to five inches in height, although the bags used in organized softball leagues are usually two to four inches above the surface. Bases such as these, secured to the ground, serve as an unyielding barrier for the impact of the player's foot or hand.

The use of bases that are flush with the infield surface would eliminate this potential source of injuries (*Figure 1*). If the base is of a high-contrast color, such as red or orange, a single umpire could still call a game with relative ease. These low-profile rubber bases cost between $7 and $18, compared with $12 to $15 for a standard cloth bag.

Traditionalists, whose efforts have been directed against the use of aluminum bats, may also oppose a change to recessed bases. However, safety factors must be considered, and the use of low-profile bases as standard equipment on softball diamonds would undoubtedly reduce the number of injuries occurring among softball players.

FIGURE 1. Low-profile base as compared to a standard cloth bag.



BIBLIOGRAPHY

Amateur Softball Association of America official rule book. Oklahoma City, Okla.: ASA, 1982.

Corzatt RD, Groppel JL, Pfautsch E, Boscardin J. The biomechanics of head-first versus feet-first sliding. Am J Sports Med 1984;12(3):229-32.

Wheeler BR. Slow-pitch softball injuries. Am J Sports Med 1984;12(3):237-40.

Address single-copy reprint requests to Fred M. Hankin, M.D., 2912L Taubman Health Care Center, Box 0328, Section of Orthopedic Surgery, University Hospital, Ann Arbor, MI 48109.