



National Collegiate Athletic Association

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Researchers report fewer football catastrophic injuries

Study notes positive changes that have made game safer

Catastrophic injuries and fatalities are occurring at a lower level than in the past in high-school and college football.

The 14th annual report from the National Center for Catastrophic Sports Injury Research, written by Frederick O. Mueller and Robert C. Cantu, shows that four direct catastrophic injuries occurred in college football in 1995, the most recent year surveyed, while 22 occurred in high-school football. There were no direct fatalities at the college level and four at the high-school level.

"These numbers are very low when one considers that there were 36 football direct fatalities in 1968," the report stated.

The number of catastrophic injuries in football has been relatively low throughout the 1990s. In 1990, there were no fatalities directly related to the sport, the first time that had occurred since the football study was initiated in 1931.

"In addition to the fatalities," the report said, "there were seven permanent paralysis cervical spine injuries in 1995. This number is also low when compared to the 25 to 30 cases every year in the early 1970s."

The number of neck injuries resulting in permanent paralysis was up slightly from 1994. Only one of the injuries occurred at the college level.

"The decrease in catastrophic football injuries illustrates the importance of data collection and being sure that the information is passed on to those responsible for conducting football programs," the authors stated. "A return to the injury levels of the 1960s and 1970s would be detrimental to the game and its participants."

The study of catastrophic injuries began in 1931 with a survey by the American Football Coaches Association. The University of North Carolina, Chapel Hill, with whom Mueller is affiliated, assumed responsibility for that research in 1965. In 1977, the NCAA initiated a National Survey of Catastrophic Football Injuries, also conducted at North Carolina.

As a result of the projects, important changes were made in football, including the creation of a helmet standard, improved medical care for the participants and better coaching techniques.

Because of the success of the football projects, the research was expanded to all sports, for men and

women, and a National Center for Catastrophic Sports Injury Research was established.

In this particular research, "catastrophic" is defined as any serious injury incurred during participation in a school/college-sponsored sport. "Catastrophic" is divided into three definitions: (1) fatality, (2) nonfatal (permanent severe functional disability), or (3) serious (no permanent functional disability but severe injury. An example would be a fractured cervical vertebra with no paralysis.).

In the research, injuries also are considered "direct" or "indirect." Direct injuries are those that result directly from participation in the skills of the sport; indirect injuries were caused by a systemic failure as a result of exertion while participating in a sport activity or by a complication that was secondary to a nonfatal injury.

Fall sports

The report noted that the direct injury rate for college football is higher than for cross country, soccer and field hockey, the other fall sports studied. The rate for the 14-year period is less than one per 100,000 participants, but is 1.71 per 100,000 for nonfatal injuries and 5.81 per 100,000 for serious injuries.

The indirect fatality rates are similar to the direct fatality rates for cross country and soccer but are higher for football and water polo, which has the highest indirect fatality rate.

Winter sports

College winter sports were associated with two direct catastrophic injuries in the 1995-96 season, both of which were disabling injuries to ice hockey players. One indirect fatality in swimming also occurred.

Over the 14-year period of the study, a total of 18 direct catastrophic injuries have occurred in winter sports, most of them in gymnastics and ice hockey. There also were 18 indirect injuries, most of them occurring in basketball.

The study noted that catastrophic direct injury rates for college winter sports are higher compared to high-school figures. Over 14 years, men's gymnastics has an injury rate of 36.58 per 100,000 participants for nonfatal and serious injuries. In women's gymnastics, the rate was 9.13 per 100,000 for nonfatal injuries.

The authors stated that the rate of nonfatal catastrophic injuries for swimmers were lower than those for ice hockey or gymnastics, but that they "could be totally eliminated if swimmers would not use the racing dive into the shallow end of pools during practice or meets."

Wrestling has been almost free of catastrophic injuries over the period of the study, with only one occurring among 102,174 participants during 14 years. Women's skiing has a high fatality rate (14.13 per 100,000), but that is the result of one death among a relatively small number of participants.

Spring sports

College spring sports were not associated with any direct catastrophic injuries in 1996. Over the 14-year period of the study, there have been 14 direct catastrophic injuries in spring sports, four of which resulted in fatalities. Baseball accounted for three of the injuries, lacrosse for four and track seven.

There also were six indirect fatalities in college spring sports during the period -- two in tennis, one in track, two in baseball and one in lacrosse.

Catastrophic-injury research

Direct injuries

The number of direct injuries per 100,000 participants for college sports from 1982-83 through 1995-96:

Male

Sport -- Fatalities -- Nonfatal -- Serious

Baseball -- 0.68 -- 0.00 -- 0.34

Basketball -- 0.00 -- 0.54 -- 1.09

Cross country -- 0.00 -- 0.00 -- 0.00

Football -- 0.48 -- 1.71 -- 5.81

Gymnastics -- 0.00 -- 27.44 -- 9.14

Ice hockey -- 0.00 -- 5.49 -- 5.49

Lacrosse -- 0.00 -- 1.45 -- 2.91

Skiing -- 0.00 -- 0.00 -- 0.00

Soccer -- 0.00 -- 0.00 -- 0.48

Swimming -- 0.00 -- 0.91 -- 0.00

Tennis -- 0.00 -- 0.00 -- 0.00

Track -- 0.43 -- 0.43 -- 0.64

Wrestling -- 0.00 -- 0.98 -- 0.00

Female

Sport -- Fatalities -- Nonfatal -- Serious

Basketball -- 0.00 -- 0.00 -- 0.00

Cross country -- 0.00 -- 0.00 -- 0.00

Field hockey -- 0.00 -- 0.00 -- 1.39

Gymnastics -- 0.00 -- 9.13 -- 0.00

Ice hockey -- 0.00 -- 0.00 -- 0.00

Lacrosse -- 0.00 -- 2.34 -- 0.00

Skiing -- 14.13 -- 0.00 -- 0.00

Soccer -- 0.00 -- 0.00 -- 0.00

Softball -- 0.00 -- 0.00 -- 0.00

Swimming -- 0.00 -- 0.00 -- 0.00

Tennis -- 0.00 -- 0.00 -- 0.00

Track -- 0.00 -- 0.00 -- 0.00

Wrestling -- 0.00 -- 0.00 -- 0.00

Indirect injuries

The number of indirect injuries per 100,000 participants for college sports from 1982-83 through 1995-96:

Male

Sport -- Fatalities -- Nonfatal -- Serious

Baseball -- 0.68 -- 0.00 -- 0.00

Basketball -- 5.98 -- 0.00 -- 0.00

Cross country -- 0.74 -- 0.00 -- 0.00

Football -- 2.19 -- 0.00 -- 0.00

Gymnastics -- 0.00 -- 0.00 -- 0.00

Ice hockey -- 1.83 -- 1.83 -- 0.00

Lacrosse -- 1.45 -- 0.00 -- 0.00

Skiing -- 9.49 -- 0.00 -- 0.00

Soccer -- 0.97 -- 0.00 -- 0.00

Swimming -- 2.74 -- 0.00 -- 0.00

Tennis -- 0.92 -- 0.00 -- 0.00

Track -- 0.21 -- 0.00 -- 0.00

Water polo -- 6.81 -- 0.00 -- 0.00

Wrestling -- 0.00 -- 0.00 -- 0.00

Female

Sport -- Fatalities -- Nonfatal -- Serious

Basketball -- 0.64 -- 0.00 -- 0.00

Cross country -- 0.00 -- 0.00 -- 0.00

Gymnastics -- 0.00 -- 0.00 -- 0.00

Ice hockey -- 0.00 -- 0.00 -- 0.00

Lacrosse -- 0.00 -- 0.00 -- 0.00

Skiing -- 0.00 -- 0.00 -- 0.00

Soccer -- 0.00 -- 0.00 -- 0.00

Softball -- 0.00 -- 0.00 -- 0.00

Swimming -- 0.00 -- 0.00 -- 0.00

Tennis -- 0.97 -- 0.00 -- 0.00

Track -- 0.00 -- 0.00 -- 0.00

Water polo -- 0.00 -- 0.00 -- 0.00

Wrestling -- 0.00 -- 0.00 -- 0.00