

Road Traffic Crash and Injury in China

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ABSTRACT

The road traffic crash and injury are recognized as a very important public health issue and have attracted increasing attention world wide. This paper described the occurrence, trend and characteristics of road traffic injury (RTI) in China and some research works at author's institute and clinical investigation of the clinical departments.

Drinking: From 1996 to 2005, fatal drinking drive (blood alcohol concentration, BAC: $20 \leq \text{BAC} < 80 \text{ mg/dl}$) and drunk drive ($\text{BAC} \geq 80 \text{ mg/dl}$) accounted for 2.45%-4.37%.

Fatigue driving: From 2000 to 2005, fatal fatigue driving accounted for 1.66%-2.85%.

Accident proneness: About 6%-8% of drivers were prone to road traffic crashes, causing 30%-40% of the total RTCs.

Bicycle injury: From 1999 to 2004, bicycle injury from RTC accounted from 10.71% to 12.90% of total road traffic injuries, while bicycle deaths accounted 12.75%~16.49% of total fatalities from RTC. About 70% of RTC were related to bicycles.

Speed: Crash risk increases approximately in proportion to travel speed, injury risk in proportion to travel speed squared, severe injury risk in proportion to travel speed to the third power, and fatality risk in proportion to travel speed to the fourth power.

Mass: When a car crashes into another that is twice as heavy; the driver in the lighter car is 12 times as likely to die as the driver in the heavier car.

Bio-impact machines: In 1989, a series of bio-impact machines were made for impact research. They consist of BIM-□(erected type), BIM-□(horizontal type) and BIM-□(small type). They may produce impact injuries at various regions in different animals with various degrees of severity.

In addition, a new lab called biological crash laboratory with sled tracks has been established recently. It may carry out not only car crash tests but also biological sled crash experiments.

Bio-mechanical studies: It indicates that, there is a close relationship between viscous criterion (maximum multiplication of initial velocity of body deformation V and compressed volume) and the severity of injury, showing "S" curve relation between the two. Therefore viscous criterion may be considered as an important parameter for determination of injury severity.