

**Road
traffic
accidents**

Road traffic injuries classification

Vehicle occupants

Outsiders

Driver

Pedestrians

Front seater

Rear seaters

- Depends on type of impact crash
- Front impact crash
- Side impact crash
- Rear impact crash
- Roll over crash
- Other types of mishap

Front impact crash

- Car strike to another car
- Strike to some stationary object
- Vehicle decelerate
- Occupant continue to move forward

Injuries pattern

- Driver
 - Fracture of wrist and arms
 - Fracture of leg and pelvis from pressure against the foot pedals
 - Knee impact
 - Chest against steering wheel
- Impact of head
 - Abrasion and vertical cuts
- Severe impact
 - avulsion
 - basilar skull fracture
 - closed head injury
 - dislocation of atlanto-axial joint

- Front seat passenger
 - Without seat belt

- Rear seat passenger

Side impact crash

- Dicing injuries
 - Right angle or v –shape cuts caused by diced or cubical fragments
 - Cervical spinal fracture
 - Left side
 - Lacerate spleen, kidney, liver
 - Right side
 - Right lobe of liver ,right kidney

Rear impact injuries

- Whiplash injuries
 - Muscle spasm and ligamentous injuries
 - Neck fractures are rare

Roll-over crash

- Non-belted occupants
 - Identification of driver

Other mishap

- Ejection
- Fire
- Submersion

Seat belt injuries

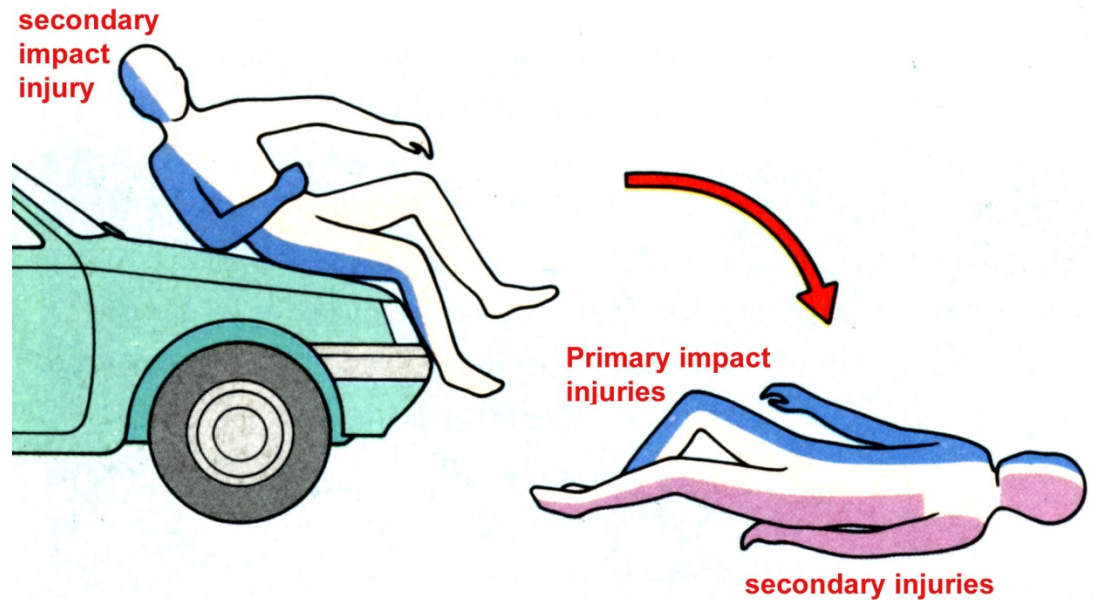
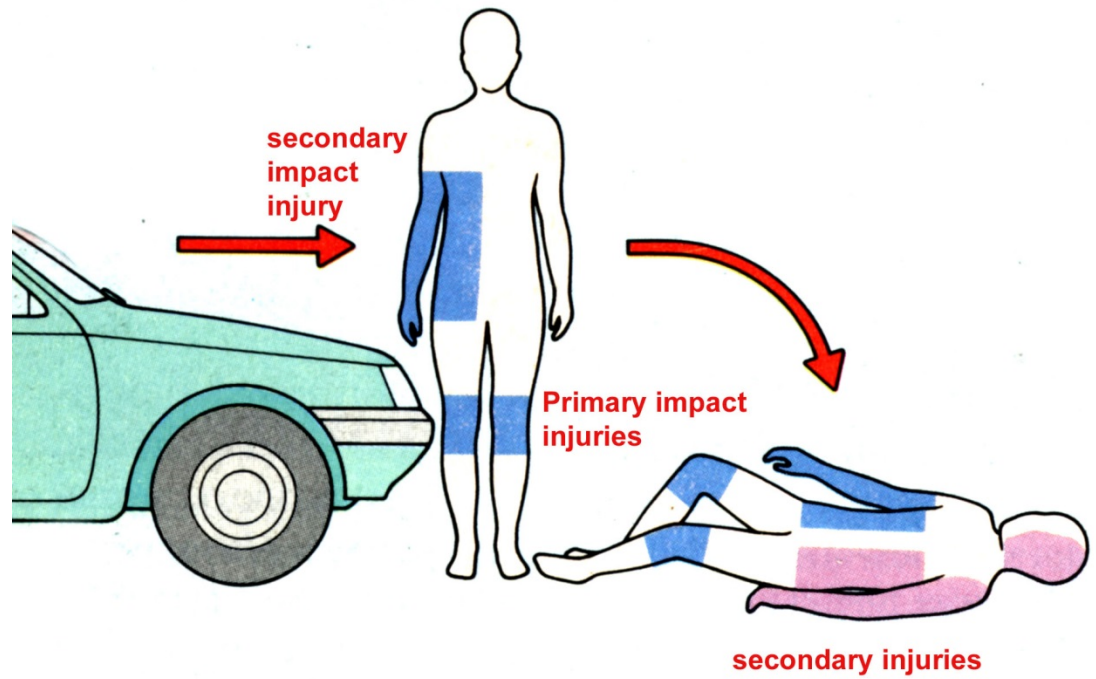
- Lap belt
 - Double shoulder harness
- Three point harness (diagonal and transverse strap)
- Abrasion and bruising to chest and abdomen

Air bags injuries

- A sensitive deceleration device triggers the ignition of sodium azide, a solid and highly toxic explosive propellant, which is converted in milliseconds to nitrogen gas.

- facial bruising
- Partial or complete amputation of fingers
- dislocated and fractured arms or cervical spine
fatal head injuries.
- Eye injuries are common and range from mild corneal abrasions and chemical burns from contact

Pedestrian injury



Primary impact injuries

- Impact between vehicle and pedestrian
- Height determine site and nature of injuries
 - In children's head
 - Trunk and legs in adults
 - Projecting parts
 - Bumper, fender, lights, radiator or bonnet
 - If struck from behind
 - Thoracic spine or lumbar spine

Bumper fracture

- Tibia and fibula of one or both legs
- Spiral or wedge shape fracture
 - Triangular base indicate site of impact
 - Apex points the direction
- Measure distance from heel to fracture site
- Unilateral fracture when hits from the side
- Scaled photography is important

Secondary impact injuries

- Point of impact above center of gravity
- Below center of gravity

Secondary injuries

Run-over injuries

- Depend on part of body run-over
- Weight and speed of vehicle
- Degloving injuries
- Tyre marks

Factors contributing accidents

- Environmental factors
- Mechanical factors
- Antecedent factors

Autopsy

- External injuries
- internal injuries
 - Pneumothorax
 - flail chest
 - Ladder tear at junction of aortic arch and descending aorta
 - Traumatic rupture of heart
 - Transverse tear of right atrium

- Abdomen
- peritoneal cavity
- Laceration of organs
- Crushing of tissue acid metabolites

Laboratory specimens

Railway injuries