

## **TRAFFIC INJURIES**

Road traffic participants:

- Pedestrians
- Drivers and passengers
- Pedal cyclists
- Motorcyclists

### **AUTOPSY - PURPOSES**

- to determine cause of death
- to determine the extent of injuries (reconstruction of car accident)
- to establish contributing factors (diseases, alcohol or/and drug intoxication)
- identity of the body or remains

### **AUTOPSY**

- all skin injuries and bone fractures should be measured from ground level (clothes!!!)
- comparison to results and photos of vehicle inspection (car, bicycle, motorcycle)
- comparison to results of inspection at the scene of the accident

### **CAR-to-CAR COLLISIONS**

- frontal – two vehicles collide head-on or vehicle strikes fixed object (massive deceleration)
- side
- rear – (massive acceleration)
- rollover – more lethal than side impacts
- any combination of these listed above

### **PEDESTRIANS**

- running, walking person, also walking with the bike
- standing still person
- sitting person
- laying person

### **PEDESTRIANS**

Injuries:

- primary – due to impact with the vehicle,
- secondary – due to impact with the ground or objects after throwing off the vehicle)

## **PEDESTRIANS**

Injuries at pedestrians depend on:

- speed of hit by the vehicle
- type of the vehicle
- braking or not
- size of the victim (adult or child)

### **PEDESTRIANS - speed**

- low speed and higher speed with breaking – victim is picked up, strikes the bonnet and windshield, slides off the bonnet onto the road or sides
- high speed – projecting up into the air, even without hitting any part of the vehicle (no breaking), striking the ground

## **PEDESTRIANS**

Type of vehicles

- low suspended vehicles – sport cars, passenger cars (strikes **lower than** center of gravity) – adult is picked up, child is knocked forward,
- high suspended cars – lorry, trucks, buses (strikes **at or above** center of gravity) – adult is knocked down and run over

## **PEDESTRIANS – INJURIES**

- Legs
- Trunk
- Head

PEDESTRIANS – injuries of the head

Impact of the windshield

- lacerations, small incised wounds (superficial L-shaped, V-shaped, sparrow-foot shaped – from shattered window), bruises, abrasions
- bone fractures (base of the cranium, neck injuries)
- brain injuries

## **PEDESTRIANS - INJURIES OF THE NECK**

**PEDESTRIANS – injuries of the legs**

- skin injuries
- hip joints
- knee joints
- ankle joints
- bone fractures (pelvis, legs)

## **DECOLLEMENT – „FLAYING” OF THE SKIN**

PEDESTRIANS – injuries of the trunk

- skin injuries
- injuries of internal organs
- bone fractures

## **ANKLE JOINTS**

Injuries of ankle joints

- fractures of lateral or medial malleolus,
- medial (deltoid) and lateral ligaments,
- anterior part of joint capsule,
- calcaneal tendon

## **MESSERER’S FRACTURE**

### **Drivers and passengers injuries**

- head and cervical spine (whiplash)
- trunk
- thighs and legs

## **INJURIES OF CAR OCCUPANTS**

- abrasions, bruises, subskin haemorrhages (seat-belts?)
- injuries of inner organs (brain, aorta, lungs, heart...)
- bone fractures (cranium, sternum, ribs, pelvis, upper and/or lower extremities)
- injuries of the joints elements

## **LATERAL WIPLASH**

## **DRIVER OR PASSENGER**

### **Location of injuries**

## **BIOLOGICAL EVIDENCE**

### **Pedalcyclists**

Riding bicycle

Injuries:

-head

-neck

-trunk

-extremities,

-genitals

## **RECONSTRUCTION OF AN ACCIDENT**

1. Draft of situation on the road after accident (directions, trace marks on the road, cloth, personal things),
2. Inspection of the vehicle (all damages, seat-belts, head rests, biological traces – blood, hair)
3. Autopsy findings
4. Opinion of an engineer expert – knowledge about directions of movement of car occupants during accident
5. Medical record.

Common questions:

- What was pedestrian position at the moment of accident? (standing, lying, left, right?)
- Which side of the body he/she was hit?
- Who was the driver?
- How passengers were located in the car in this accident?