



THE ASSOCIATION

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PEDESTRIAN/BICYCLE CRASH INVESTIGATION

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Spring, ah yes, 'tis the season for the joggers, pedestrians, bicycles, and motorcycles to come out in full force, some into the path the ever-unsuspecting motorist. Every year, there are thousands of crashes involving pedestrians and bicyclists in the United States. Investigation into these types of crashes, while seemingly straightforward, is seldom as it seems.

Investigators looking into Pedestrian/Bicycle crashes need to consider several items as they conduct their investigations. These areas include: First Contact position, Vehicle Speed, Driver's strategies and tactics, Ped/Bicyclist strategies and tactics, Conspicuity and the possibility of even more sinister events, such as the possibility of homicide or suicide.

Starting the investigation often begins at the scene. Obviously, the very first item on the list of many things to do is to secure the scene, if not already done. Nothing makes a

job go into the category of "miserable experience," than that of an unsecured scene - one that is free from added or removed evidence. I can recall one pedestrian/car

crash that I had been summoned to investigate for another agency. By the time I had arrived, the victim had been transported to the hospital, the vehicle had been moved to the side of the road and most of the physical evidence had already been picked up. They were able to provide me with a shoe that had been picked up by a bystander and given to the officers...Needless to say, my investigation turned out to become much more difficult than it needed to be.

Scene investigations should start out with consideration given to the general scene location - is it a busy intersection, a lone stretch of country road,, etc.? Weather, visibility, road conditions should also



be considered. Initial scene investigations should include identifying and protecting short-lived evidence and the recording of such evidence quickly. The location of the pedestrian/bicycle and vehicle's first contact point(s) are key to a good investigation; however, first contact points are sometimes very difficult to find. Equally important in the investigation is determining the approach path and orientation of the pedestrian/bicyclist at impact with the vehicle in question.

Investigators should also attempt to determine how the victim moved as a result of the collision, as well as attempting to determine orientation and (Continued on page #4)

MEET OUR DIRECTOR: DOUG HEUSTIS, INDIANAPOLIS METRO PD

Doug Heustis has a law enforcement career that spans over 24 years. He started his law enforcement career with the Indianapolis Airport Authority Police Department in 1989.

In 1994, Doug joined the Marion County Sheriff's Department and worked road patrol for six years before being assigned to the department's Crash Investigation section which was responsible for the investigation of both fatal and hit and run crashes. In 2001, he

was promoted to sergeant and in 2004 became the supervisor of the section. In 2007, with the consolidation of the Marion County Sheriff's Department and the Indianapolis Police Department, Doug was assigned to the new department's Crash Investigation section. Currently, Doug is responsible for managing the department's use of the ARIES crash reporting program and the investigation of fatal crashes.

Doug received his first advanced crash investigation

training in 1998 and attended crash reconstruction training in 2000. Since then, he has investigated or supervised the investigation of hundreds of fatal and possible fatal crashes.

Doug is also a member of the Marion County Fatal Alcohol Crash Team, having been there since 2002.

Please welcome Doug Heustis as a Director in the IACAI!



BBC Internet Report

Scotland: Strict Liability for Drivers?

Cyclists campaigners are calling for a new law in Scotland to make motorists automatically at fault in an accident involving a bicyclist. The United Kingdom is only one of five European countries that do not currently have the law, known as "Strict Liability." Campaigners, said the law would help reduce the number of cyclists killed and/or injured, but critics say it is unfair, and smacked of the "arrogance" of cyclists. Seven cyclists were killed and more than 150 were seriously injured on Scottish roads during 2011, according to Transport Scotland figures.

Under a strict liability law,

motorists would be held responsible in the civil courts for all accidents involving cyclists—unless they can prove they are not to blame...

Supporters of the Campaign for Strict Liability say that it would greatly reduce the time it takes for accident victims to win compensation.

However, opponents of the idea said cyclists and motorists should be equally responsible for road safety. Alan Douglas, a motoring journalist and member of the Institute of Advanced Motorists said, "I think this is an absolutely astounding suggestion. Everyone using the roads is subject to the same law. We all have equal re-

sponsibility, and surely the person who should be held responsible for an accident is the person who causes it." "The assumption that it is always the motorist at fault is absolutely breathtaking. It smacks of the sort of arrogance that we hear from some cyclists." A strict liability law would see the introduction of a hierarchy based on the vulnerability of road users. It would also mean that cyclists would be held automatically responsible for accidents involving pedestrians.

To read the entire story, Visit: <http://www.bbc.co.uk/news/uk-scotland-22155209>.



Indiana Cyclist Facts:

In 2011, there were 956 crashes involving pedalcyclists in

Indiana.

Of those crashes, 13 resulted in fatalities.

Source: 2012 Indiana Traffic Safety Facts

MORE ABOUT: PEDESTRIAN/BICYCLE CRASH INVESTIGATION

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travel. If possible, the speed of the victim at first contact. Position of the victim on the roadway, the type of clothing and even the perception/ reaction time of the victim should all be weighed.

Scene Evidence:

Scene evidence may be readily apparent, but then again, it may not be outwardly apparent. In order to determine possible points of impact, the investigator should look for signs of shoe scuffing, body fluids/tissue, clothing/ fiber transfer on the roadway. Additionally, look for personal effects (contents of purse/ book bag) and its post-impact

trajectory. Because energy is dispersed in a cone shape, a cone of debris results. This may help to isolate a possible location of first contact.

Tire scuffs or widening of the impacting vehicle's skid marks may indicate loading of the vehicle's suspension. The weight of a 90lb person will bottom out the suspension of the average car. The marks, however, may appear only as a slight irregularity, so one should pay very close attention to those marks.

Vehicle speed is always going to be an issue— maybe not for the investigator but more for the victim or victim's family. The investigator should not

get hung up on speeds; however, as the investigator may only have limited success in answering that question. The other side of this is, though, that the presence of speed may provide evidence of driver negligence or recklessness...

Victim Evidence:

A victim's injuries may provide a telling story as to what occurred. Whether at the scene, hospital or with the Coroner, take a good look at the victim's clothing. Note the color and any damage done and where at. Note the type of injuries and where they are

(Continued on Page #4)



Members:

Your help is still needed! There are several membership dues still outstanding for 2013. Please help your association by sending your membership dues today!

ACCIDENT INVESTIGATION TRAINING

IPTM <http://www.iptm.org/Schedule.aspx>

6/3-7/2013	Human Factors in Crash Reconstruction Jacksonville, FL
\$825	
7/15-19/2013	Interviewing Techniques for the Traffic Crash Investigator Jacksonville, FL
\$795	
7/15-19/2013	Occupant Kinematics for the Traffic Crash Reconstructionist Murfreesboro, TN
\$825	
7/22-26/2013	Digital Photography/Crash Invest. Jacksonville, FL
\$795	
8/19-23/2013	Advanced Traffic Crash Reconstruction w/HVE-CSI Jacksonville, FL
\$995	
9/9-20/2013	At-Scene Traffic Crash Invest. Jacksonville, FL
\$950	
9/23-10/4/2013	Advanced Traffic Crash Invest. Jacksonville, FL
\$950	

NUCPS www.scs.northwestern.edu/program-areas/public-safety/courses/crs_list.asp

9/9-20/2013	Crash Investigation I Evanston, IL
\$975	
9/9-13/2013	Motorcycle Crash Reconstruction Evanston, IL
\$825	
9/23-10/4/2013	Crash Investigation II Evanston, IL
\$975	
9/23-27/2013	Vehicle Dynamics Florence, KY
\$TBD	
10/7-11/2013	Vehicle Dynamics Evanston, IL
\$775	
9/30-10/11/2013	Traffic Crash Reconstruction Florence, KY
\$TBD	
10/14-25/2013	Traffic Crash Reconstruction Evanston, IL
\$1050	
10/21-11/1/2013	Crash Investigation II Fort Wayne, IN
\$TBD	

To Register, visit the website or call: 904-620-4786

To Register, visit the website or call: 800-323-4011

(MORE ABOUT) PEDESTRIAN/BICYCLE CRASH INVESTIGATION

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located at, and note the final resting location and position of the body at rest. If the victim was wearing any safety equipment, note the type of safety equipment used and photograph it. Also note any observable damage found on the equipment.

If the victim was on a bicycle, note the final rest location of the bicycle. Document and photograph the damage done to the bike. Note what gear it may be in and again, safety equipment used, if any. Pedestrian injuries almost always include some sort of head injury; neck, arm and leg injuries are common. Leg fractures are sometimes seen when the vehicle strikes the pedestrian as he/she is walking at or near a right angle to the striking vehicle. The fractured leg is often the leg that was leading or closest to the vehicle at the time of impact. The trailing leg may or may not fracture, depending on the speed of the vehicle. Look for scuffing on the outside sole of to determine which leg was trailing. Compound or open fractures occur at speeds around 27-35mph.

Vehicle Damage:

When it comes to vehicle damage, there may be little, or there may be some... Examine the vehicle for damage, looking for points of contact, clothing markings/transfer, shoe imprints, blood or tissue spatter, or imbedded hair in the windshield, grill, or body seams. Any evidence

found should be photographed and if possible, gathered and secured as evidence per your department's protocols. Measuring the damage location may help correlate contact with the victim/bicycle. Also consider obtaining the information from the Airbag Control Module, if available.

When it comes to pedestrian strikes, the body doesn't always attain the same speed as the striking vehicle, unless the vehicle is traveling slower, (maybe somewhere around the 20 mph area..). How the body interacts depends on the car's shape and body style. For example, with lower profile vehicles, the pedestrian's center of mass is higher than the vehicle profile. Impact may occur around the knees or lower. On higher profile vehicles, while the pedestrian's CM may still be higher than the vehicle profile, the impact may affect the knees or higher on an adult, or even higher on a child. On vehicles with a blunt front end, such as a van, the pedestrian's CM is lower, and therefore, the pedestrian will behave differently when struck. Vehicle speed can dictate how the body reacts at impact. Head strikes may occur on the front of the vehicle between 25-30 mph, while windshield strikes may occur at speeds of 30-45 mph. The most common type of impact involving car/pedestrian crashes involves the wrap. This occurs around 19 mph and tends to bend the body over onto the front of the vehicle. The second most

common type of impact is the forward projection. This impact occurs at lesser speeds, say around 12 mph. The least common type of impact is the somersault, where the body is literally somersaulted through the air, striking the upper windshield, roof, and/or trunk areas. This would involve an impact with a vehicle at a much higher speed, say in the 45 mph or greater speed range. The dragging of a pedestrian following being struck is relatively rare and involves the pedestrian being knocked down and basically ran over. Dragging is characterized by extensive tissue/blood loss and potentially high speed values. Don't, however, try to determine speeds based on dragging evidence.

In summary, car/pedestrian or car/bicycle crashes involve meticulous scene investigation, looking for trace evidence and faint marks. Skid marks from striking vehicles may or may not be there; vehicle debris may or may not be present. Photo-documentation of the scene, body, and vehicle are very important.

The speed estimates presented are estimates only and should not be used to form an opinion as to how fast a vehicle may or may not have been going.

Finally, while speed estimates are often demanded in a car/pedestrian crash, they can be very elusive and difficult to prove. Don't be afraid to indicate that speeds cannot be determined.



Sources:

Vehicle Pedestrian Crash Investigation, by Northwestern University CPS;
Pedestrian Dynamics, by IPTM;
and Investigation of Pedestrian/Bicycle Collisions, by Tony Becker.



IACAI SKILL REVIEW

This issue of the IACAI Skill Review involves lessons learned in Crash I & II.

Answers will appear in the next edition of the Association.

1. A body's rate of change of position with respect to time is known as:
 - A. Acceleration
 - B. Distance
 - C. Velocity
 - D. Rollover

2. The ratio of horizontal force required to slide an object on a surface to the vertical force is known as:
 - A. Drag Factor
 - B. Constant Velocity
 - C. Slide
 - D. Coefficient of Friction

3. In order to calculate the time it took for a vehicle to do something, the Investigator must have two factors:
 - A. Distance, Acceleration
 - B. Acceleration, Drag Factor
 - C. Force, Mass
 - D. Velocity, Distance

4. A body's rate of change of velocity with respect to time is known as:
 - A. Velocity
 - B. Distance
 - C. Time
 - D. Acceleration

5. When a vehicle skids with all four tires locked, the weight of the vehicle is shifted _____, resulting in wider and heavier skid marks.

6. A crash investigator examines a tire with a sidewall tear. He also finds "P235/75R16" embossed on the sidewall. What does "75" mean?
 - A. The number of cords used to produce the tire.
 - B. The ratio of the tire's cross section height to its width.
 - C. The width of the tire in millimeters.
 - D. The maximum amount of air pressure the tire is capable of holding.

7. On a tire, this occurs when there is too little air in the tire for the load on it.
 - A. Under-deflection
 - B. Over-deflection
 - C. Transverse dissection
 - D. Circumferential abnormality

Answers from last issue of the IACAI skill review:

1. Driver, Vehicle & Road
2. Before, During & After
3. Induced Damage
4. Corn kernel
5. Force
6. Rollover
7. Friction
8. Furrow
9. Wider
10. False
11. False
12. True
13. Low



SEMINAR ANNOUNCEMENT - PLEASE POST -

The Indiana Association of Certified Accident Investigators will be sponsoring a seminar on

"Critical Speed Analysis"

Wednesday, June 26, 2013 0900-1500 hrs

at the

Buck Creek Fire Department Training Facility

5809 West Airport Blvd, Greenfield, Indiana, 46146.

(For a map of the location, please visit <https://maps.google.com/maps/ms?msa=0&msid=202685464269224944992.0004dbf9c751fff3e5494&hl=en&ie=UTF8&t=h&z=20&vpsrc=1>)

"Critical Speed Analysis" refers to the ability to determine the maximum dynamic friction on a roadway from the lateral acceleration of a vehicle. This seminar will include classroom presentations as well as live vehicle skid tests. Participants are asked to bring tapes/paper and come dressed for the weather.

Everyone is welcome to attend!

Cost: \$50 for IACAI members; \$75 for non-members

No advanced registration is required.

Registration begins at 08:30am

Questions regarding this seminar may be directed to IACAI

President Kip Shuter

email: kipss@warsawpd.org

- PLEASE POST -

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