

## — PEDESTRIAN FATALITY & SERIOUS INJURY RISK +

18%



50%



77%



- (20 MPH)

30 MPH

40 MPH



## CONE OF VISION

<https://www.mass.gov/info-details/learn-about-speed-management#what-is-speed-management?>

“Every mph matters: each 1 mph increase that a person drives can be attributed to a 3% increase in potential loss of life.” (Source: <https://www.mass.gov/safe-speeds>)

- If a pedestrian is hit by a person driving at:

20 MPH



18%

likelihood of fatality or serious injury

- Pedestrian Survives the Collision without Serious Injury
- Results in Pedestrian Fatality or Serious Injury



30 MPH



50%

likelihood of fatality or serious injury



40 MPH



77%

likelihood of fatality or serious injury



Source: Impact Speed and a Pedestrian's Risk of Severe Injury or Death, Brian Tefft, AAA Foundation For Traffic Safety, 2011

**massDOT**  
Massachusetts Department of Transportation

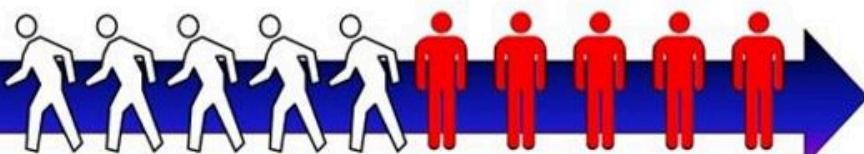
<https://www.mass.gov/info-details/learn-about-speed-management#what-is-speed-management?>

Hit by a vehicle traveling at



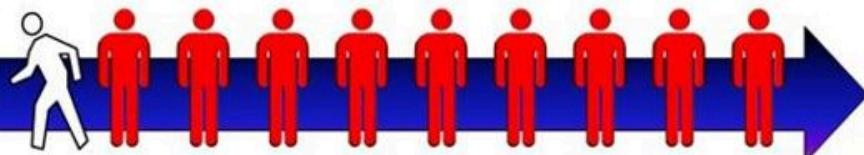
9 out of 10 pedestrians survive.

Hit by a vehicle traveling at



5 out of 10 pedestrians survive.

Hit by a vehicle traveling at



only 1 out of 10 pedestrians survives.

HIT BY A VEHICLE  
TRAVELING AT:

**23**  
**MPH**



**10%**  
**RISK OF DEATH**

HIT BY A VEHICLE  
TRAVELING AT:

**32**  
**MPH**



**25%**  
**RISK OF DEATH**

HIT BY A VEHICLE  
TRAVELING AT:

**42**  
**MPH**



**50%**  
**RISK OF DEATH**

HIT BY A VEHICLE  
TRAVELING AT:

**50**  
**MPH**



**75%**  
**RISK OF DEATH**

HIT BY A VEHICLE  
TRAVELING AT:

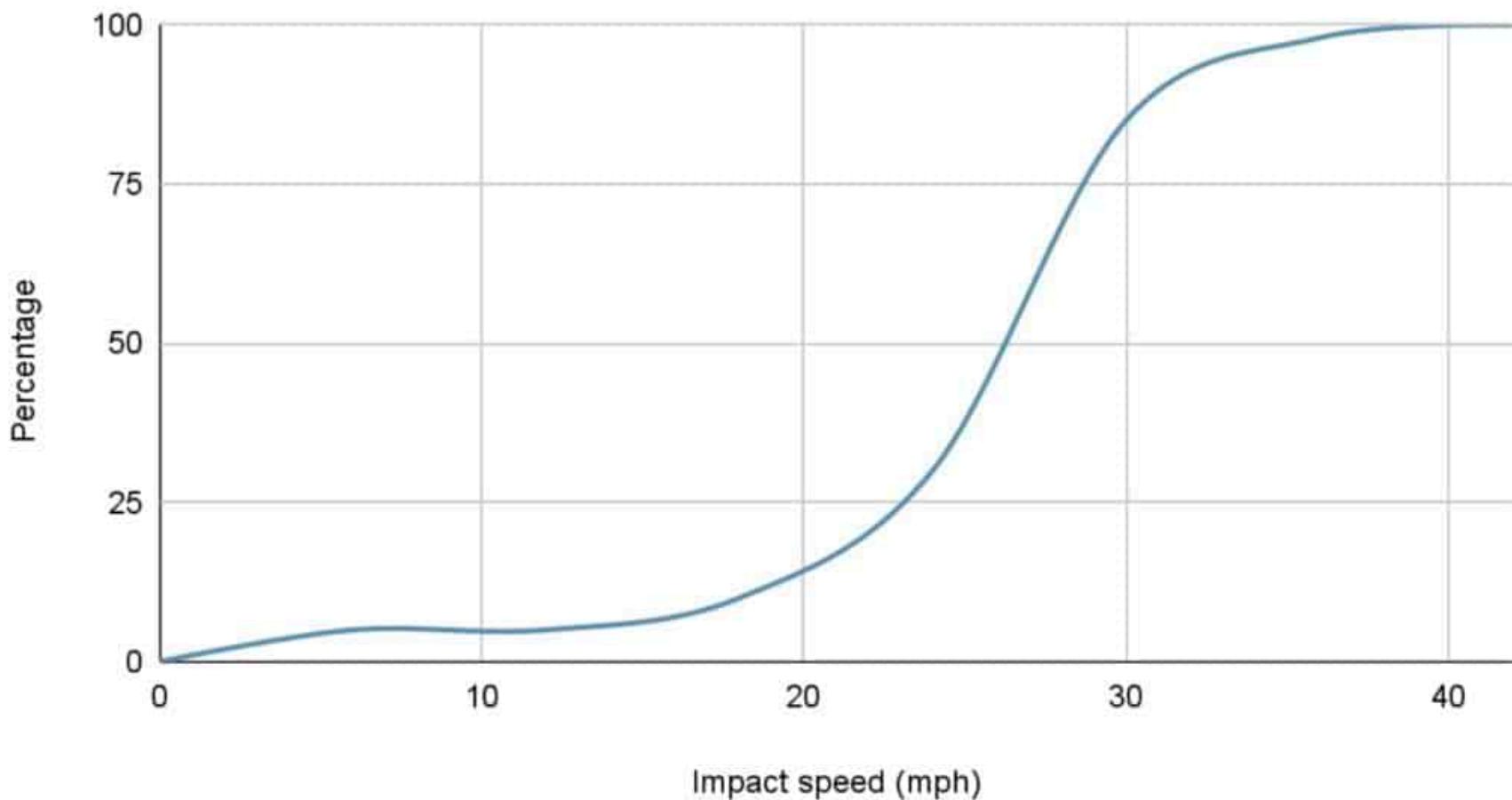
**58**  
**MPH**



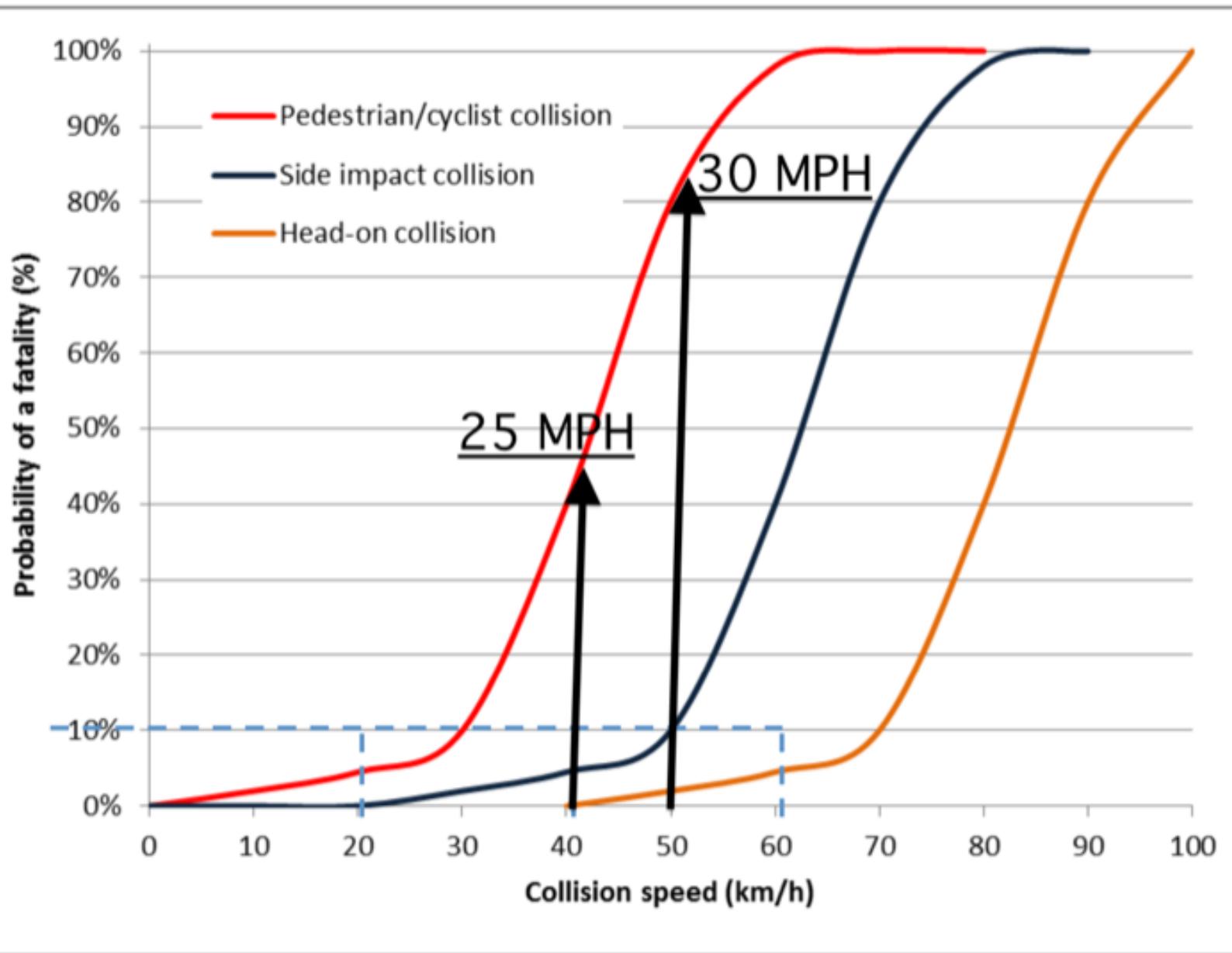
**90%**  
**RISK OF DEATH**

Source: U.S. Department of Transportation, <https://www.transportation.gov/NRSS/SaferSpeeds>

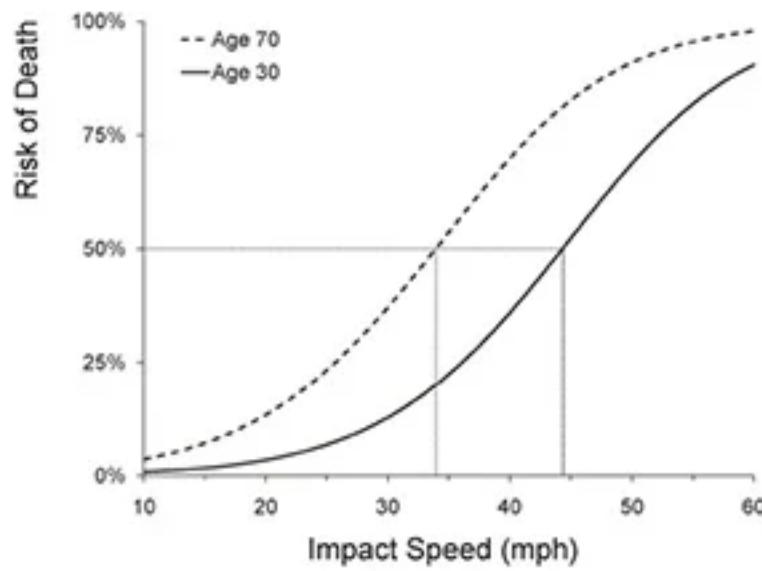
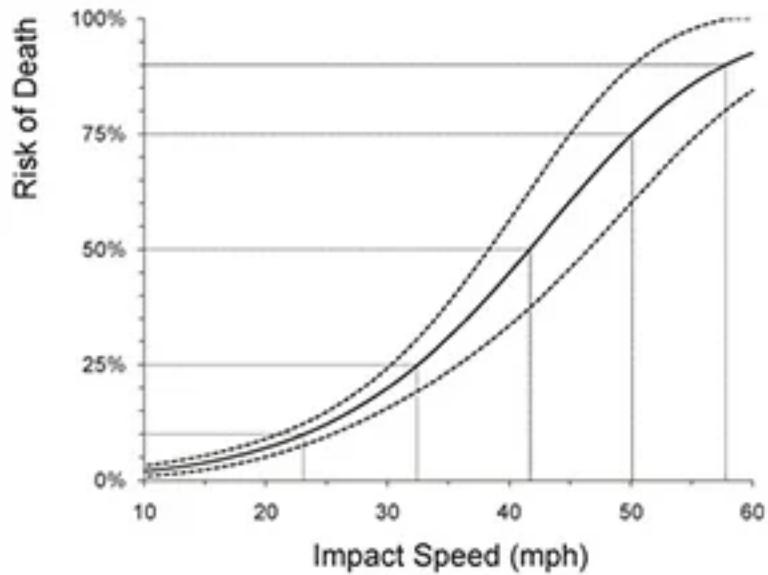
## Probability of death for a pedestrian hit by a vehicle



**Figure 1. Wramborg's model for fatality probability vs. vehicle collision speeds**



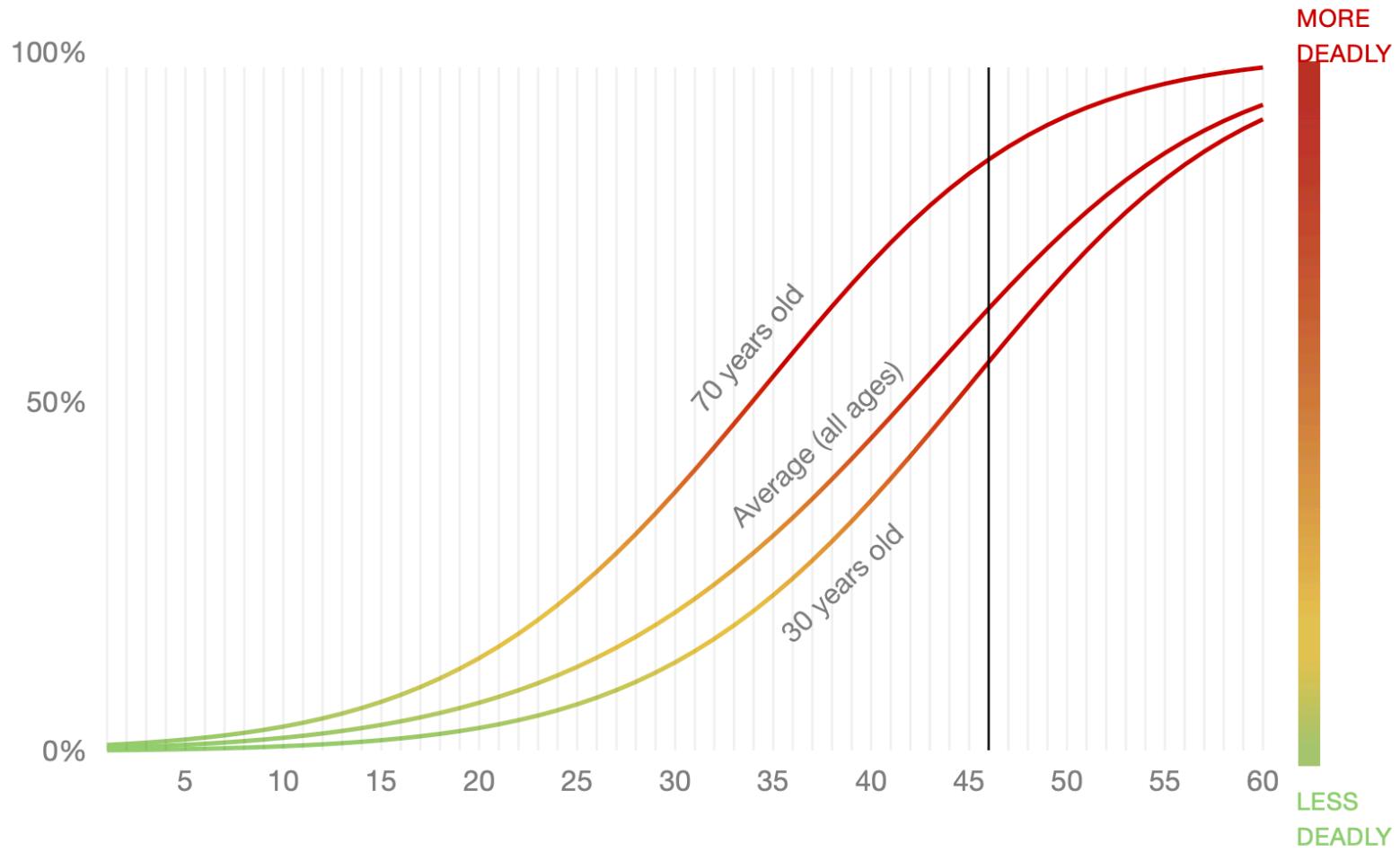
Source: based on Wramborg (2005).

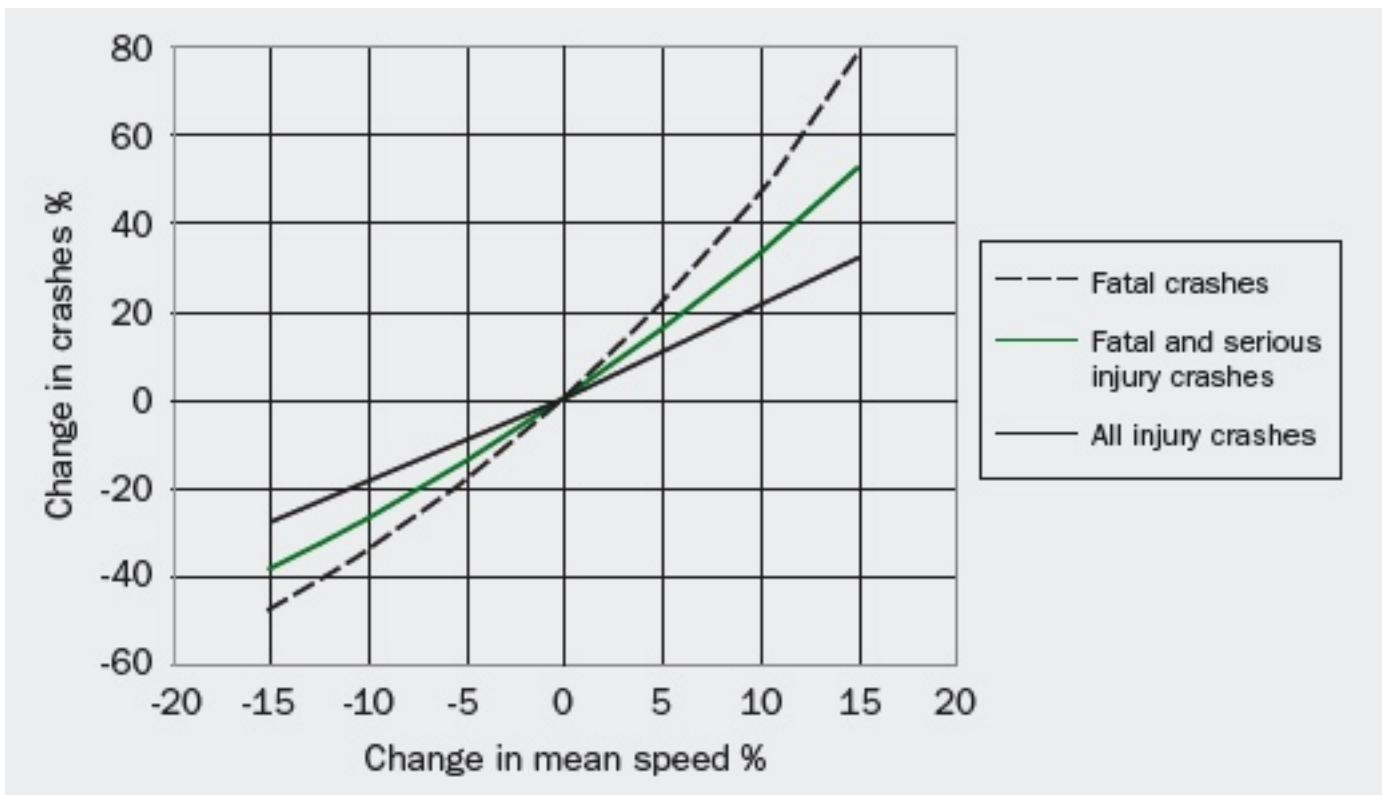


*Risk of death for pedestrians struck by a car or light truck. Average risk across all ages with the dotted line representing 95% confidence intervals (left). Average risk for pedestrians ages 30 vs. 70 (right). Source: [AAA](#)*

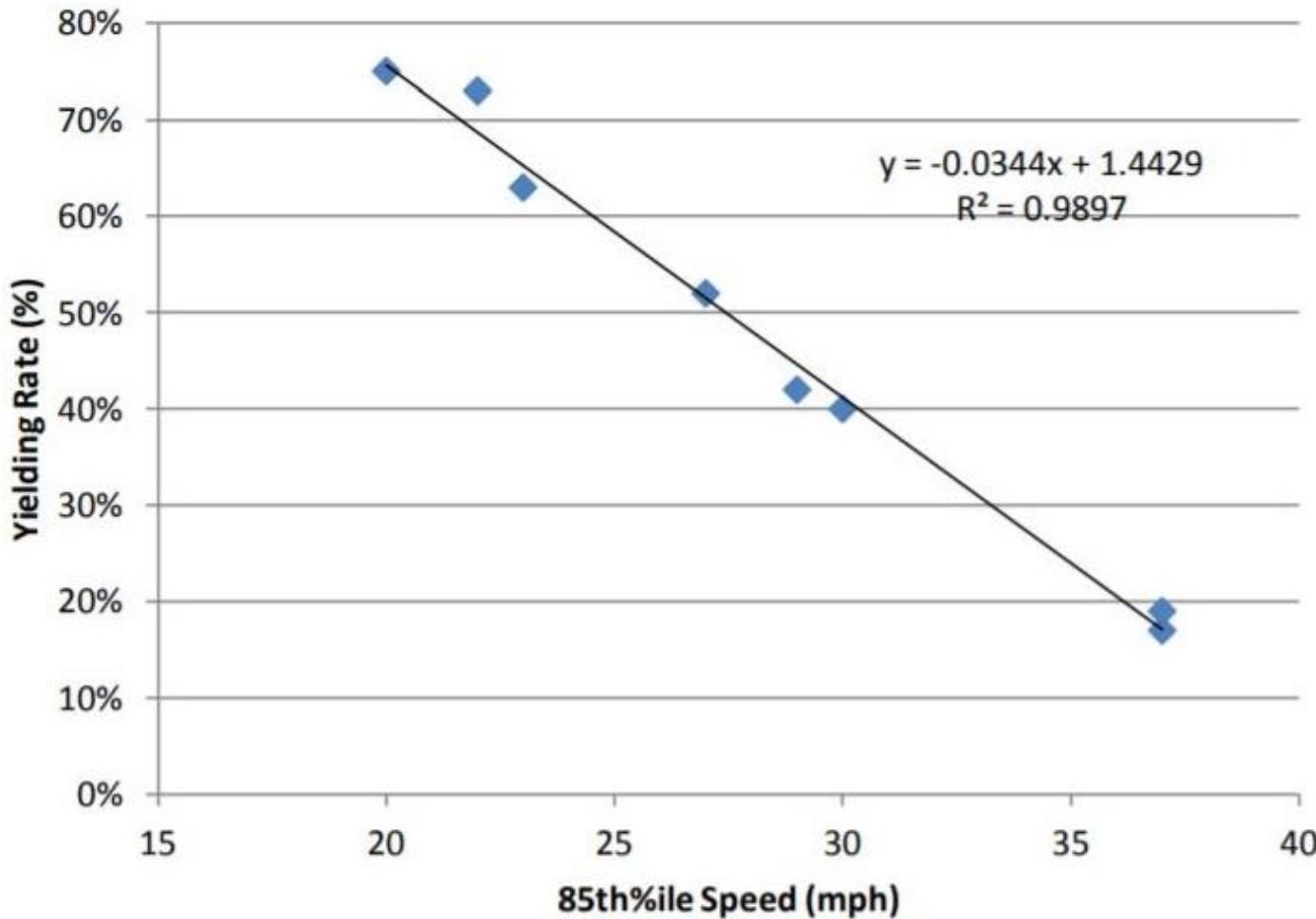
# The Chance of Being Killed by a Car Going

*Roll over the curved lines to see the risk at any speed*





Nilsson, G. (2004). Traffic Safety Dimension and the Power Model to describe the Effect of Speed on Safety. Lund Institute of Technology, Sweden.



Effect of motor vehicle speeds (measured as the 85th percentile speed) on yielding to pedestrians in marked crosswalks

Bertulis, T., & Dulaski, D. M. (2014). Driver approach speed and its impact on driver yielding to pedestrian behavior at unsignalized crosswalks. *Transportation Research Record*, 2464(1), 46-51

# TYPICAL STOPPING DISTANCES AT DIFFERENT SPEEDS

