



NHTSA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Equity in Crashworthiness Safety

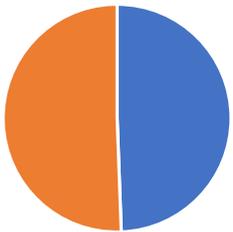
Erin Hutter, PhD
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Introduction

- NHTSA is developing a research plan to address female crash safety.
- Focus on developing new knowledge and tools that can be applied towards vehicle crash safety for female occupants. Efforts include:
 - Analyzing field data
 - Experimental research into crash biomechanics
 - Development and testing of advanced ATDs
 - Research utilizing FE human body models.

Female/Male Crash Safety – Big Picture

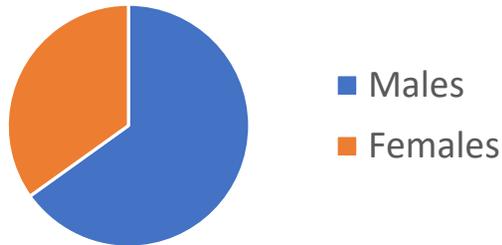
Licensed Drivers



Annual Miles Driven



Traffic Fatalities

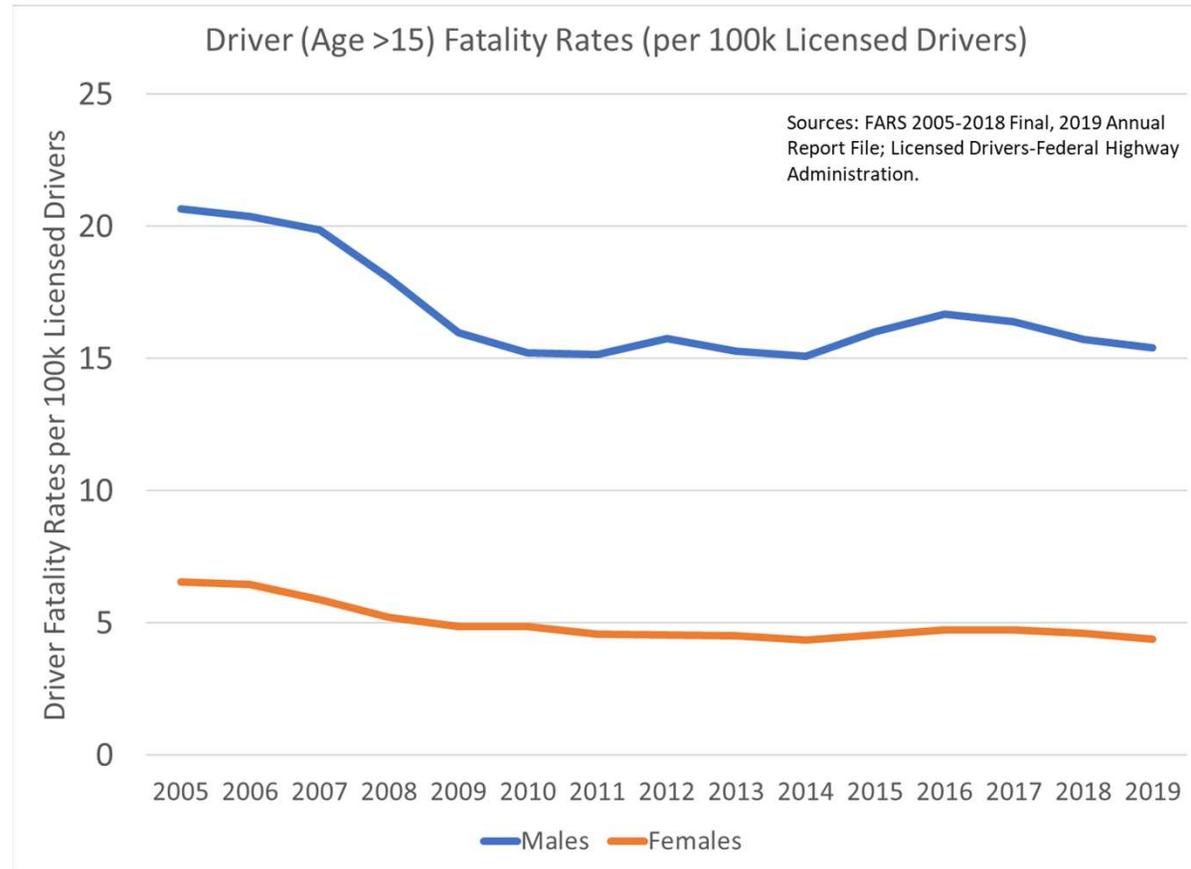
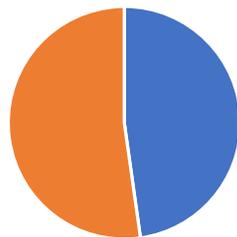


■ Males
■ Females

Incapacitating Injuries

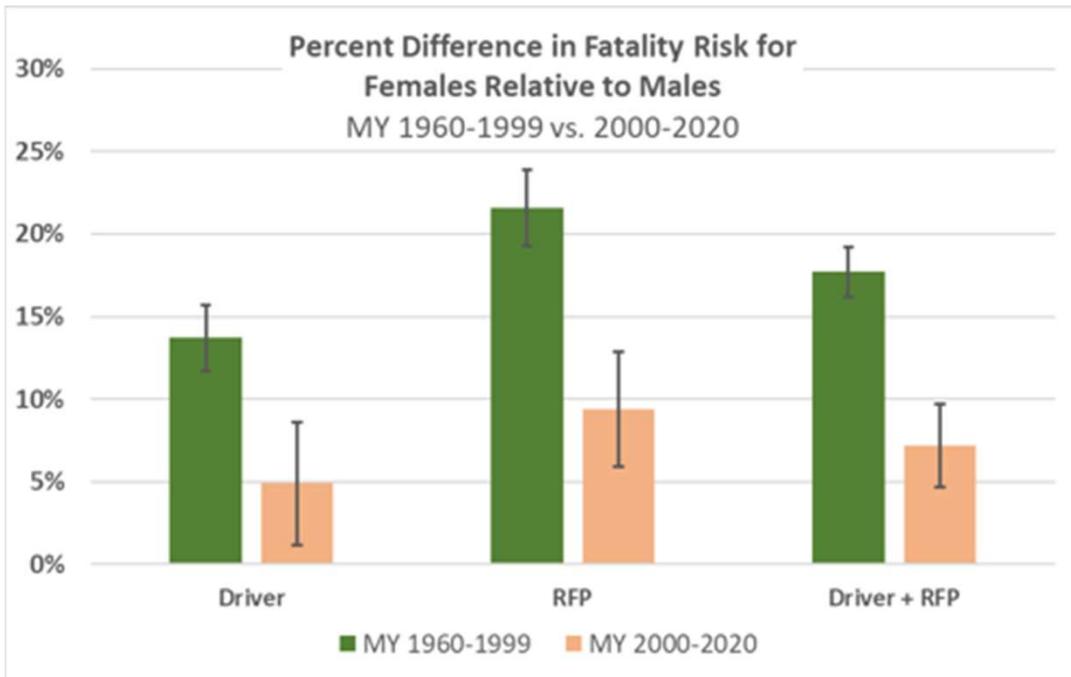


Non-Incapacitating

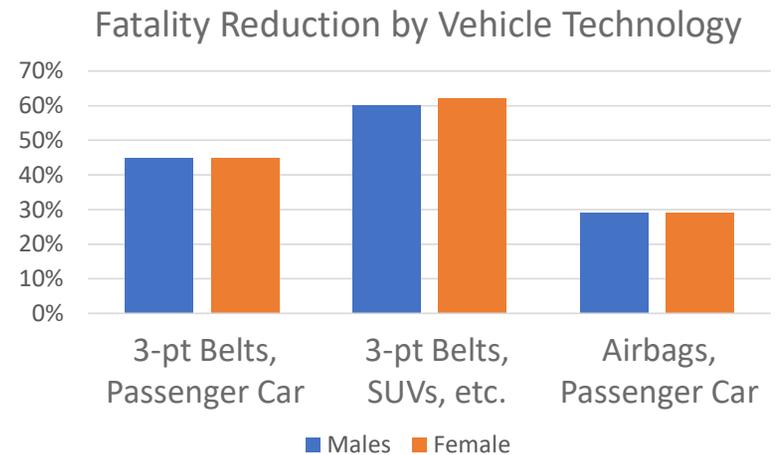


Female/Male Risk Differences

Noh 2021 (Preview - NHTSA - in agency review)



Kahane 2015 (NHTSA)



Insurance Institute for Highway Safety, 2021

- Female vs. male injury risk differences reduced when crash severity accounted for
- Injury reductions for IIHS "good" rated vehicles show vehicle countermeasures benefit both sexes

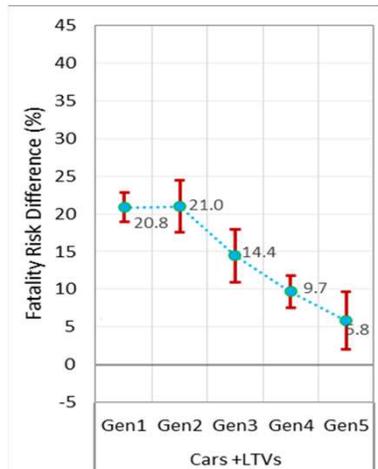
Key Research Questions

1. Are there differences in fatality and injury risks for females involved in motor vehicle crashes relative to males?
2. If so, what are the causes of motor vehicle crash injury and fatality risk differences between females and males?
3. What can be done to better predict and prevent fatality and injury for females involved in motor vehicle crashes?

Main Sections of the Research Plan

1) Field Data Analysis

(Research Questions #1 & 2)



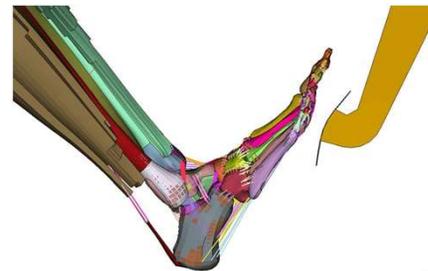
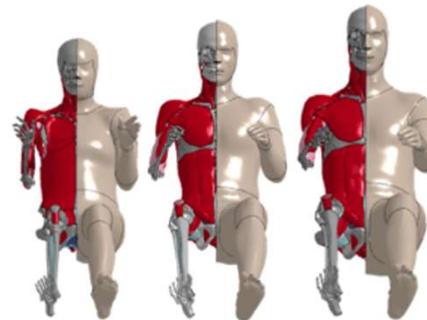
2) Advanced ATDs and Experimental Biomechanics

(Research Questions #2 & 3)



3) Human Body Modeling

(Research Questions #2 & 3)



4) Fleet Testing and Countermeasure Studies

(Research Question #3)

