Sex-related Disparities in Vehicle Crash Injury

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knowledge changing life

MEDICAL COLLEGE OF WISCONSIN

Disclosures

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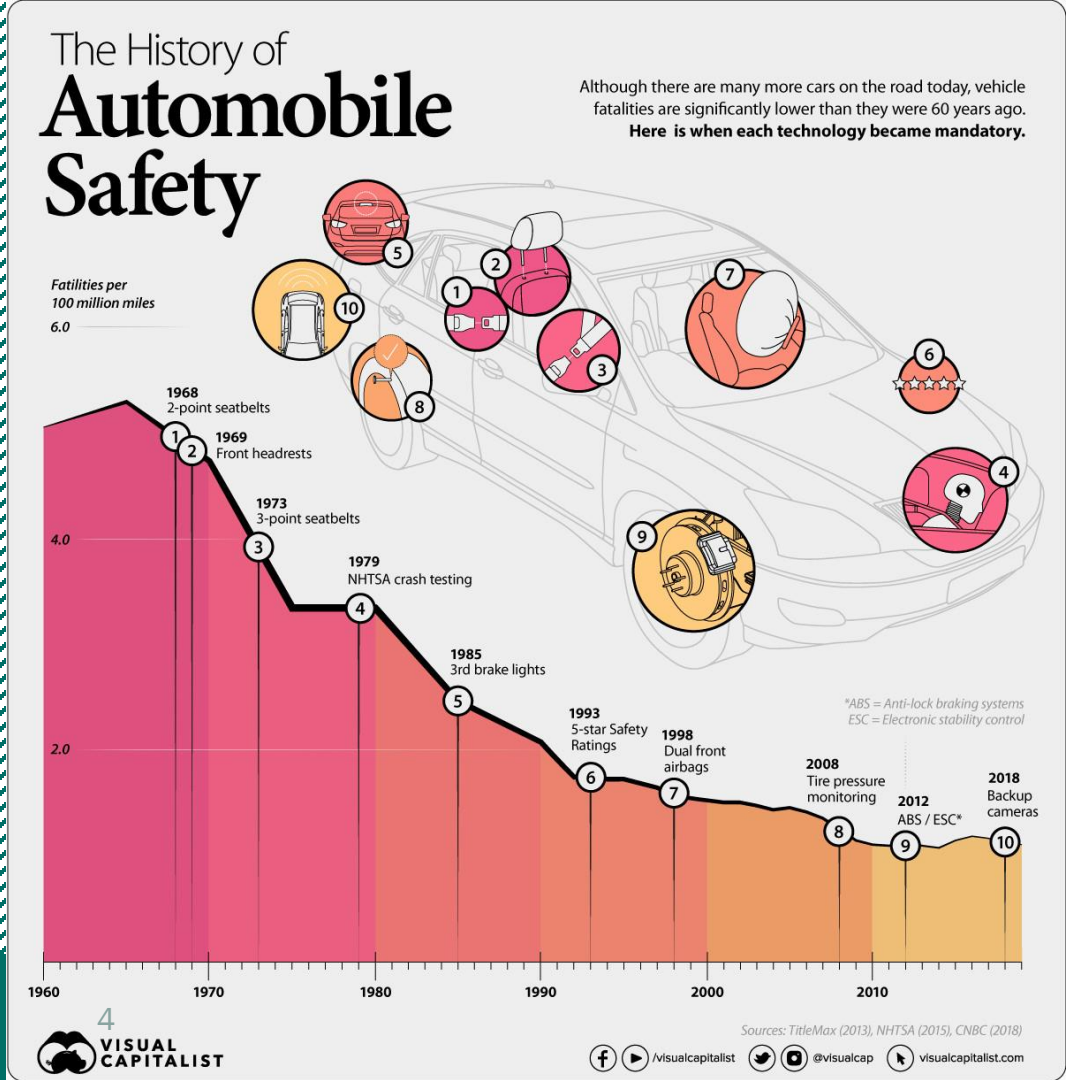
Sex and Crash Injury

Women in crashes:

- 3x more likely to suffer moderate injury
- 2x more likely to suffer serious injury
- 2.9% greater relative fatality risk
- Greater risk of PMI related to neck injury
- More frequent entrapment

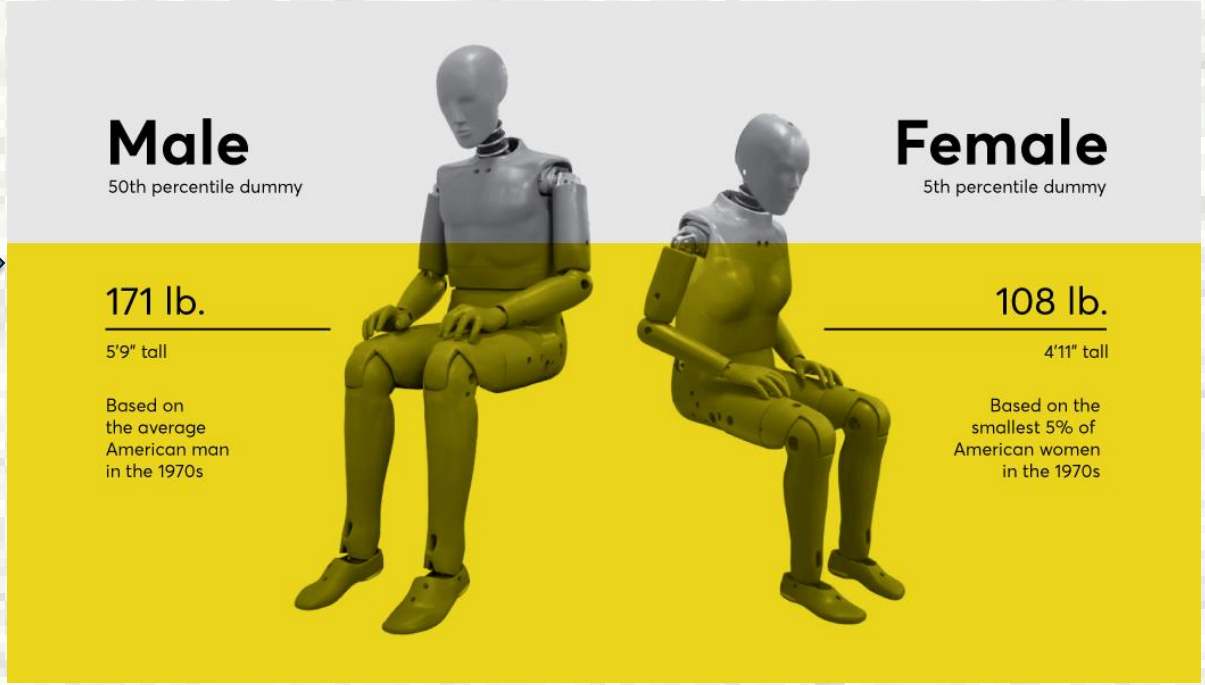
Women are carrying a disproportionate burden of the impact of vehicle crash injury.

Year	Fatalities per 100 million miles
1960	5.1
1970	4.7
1980	3.4
1990	2.1
2000	1.5
2010	1.1
2019	1.1



Current Use of Crash Test Dummies

Always, all positions



Sometimes, driver's seat not required in all testing

Origins

- Initial research era-1950s
- Ongoing lack of representation
- Male patient default
- Lack of recognition of impact
- User knowledge

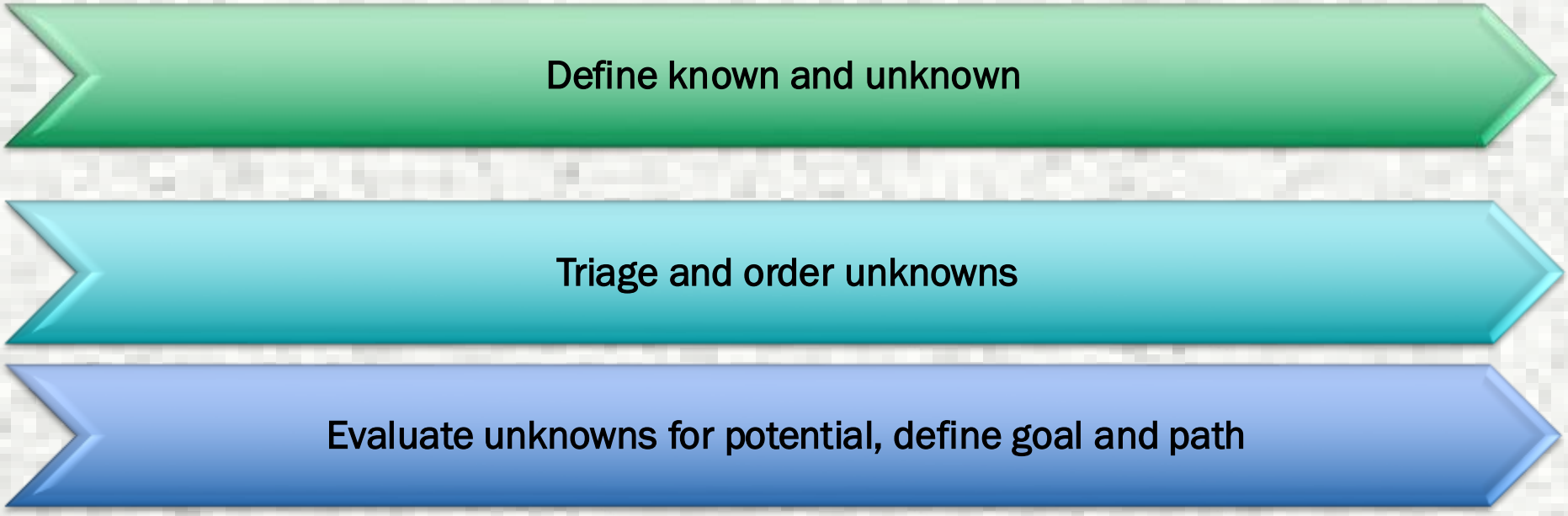
Structuring Framework

- Crash safety design—equal for all, designed for male bodies
- Women are “out of position” because of design
- Women may not be able to use equipment as designed
- Safety equipment unusable by portion of population—is this ok?

Teamwork FTW

- Crash lab here at MCW
- Multidisciplinary team
- New perspectives

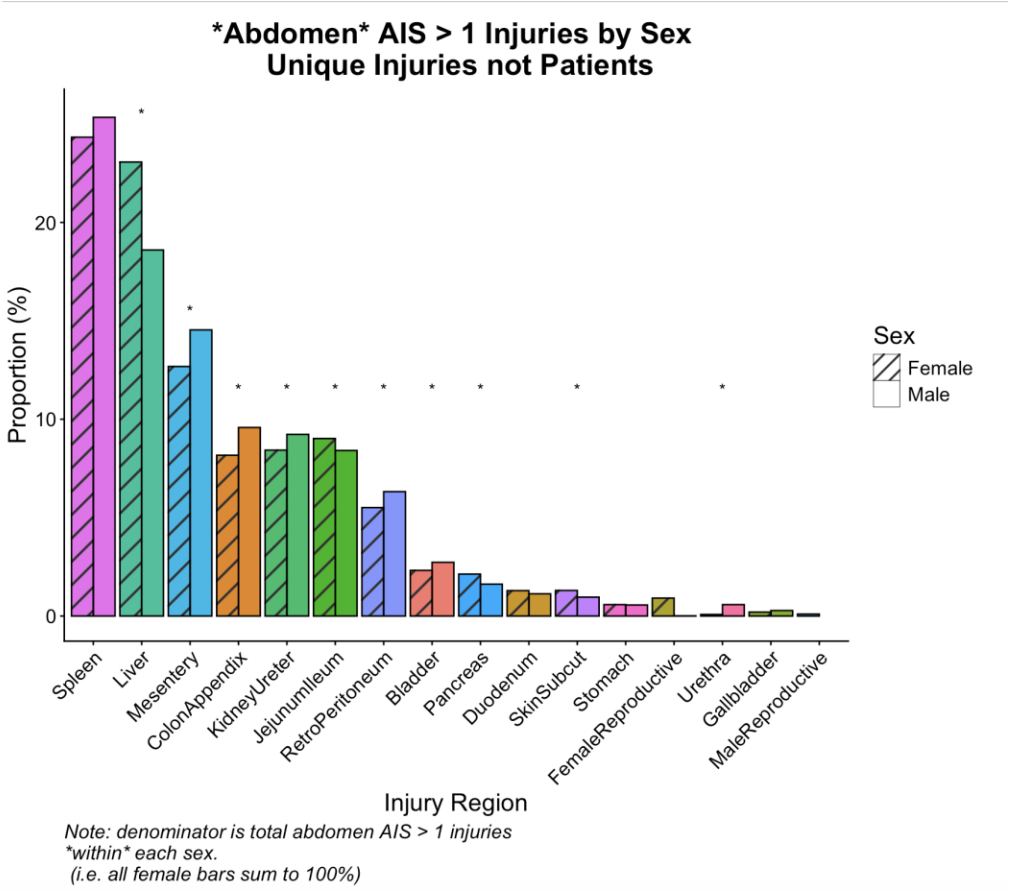
Disparity Mitigation



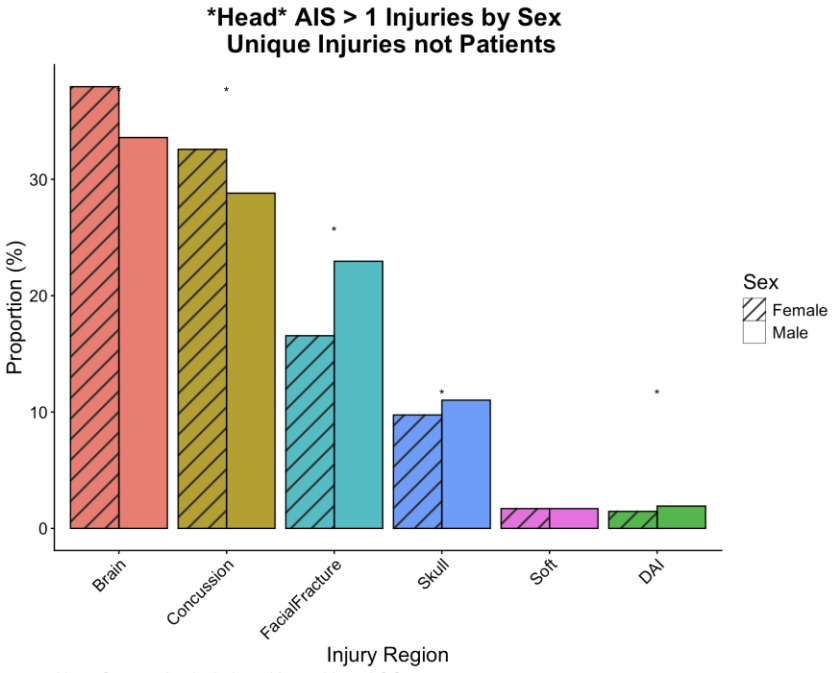
Research

- NTDB: body regions, shock index
- Trauma registry--details
- CISS—ribs, thorax

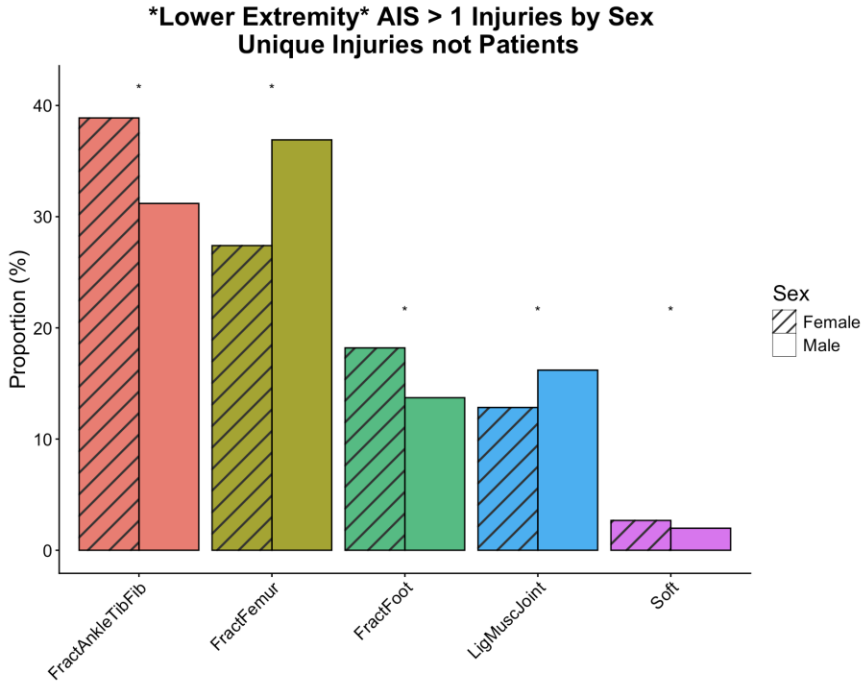
Regional Injury



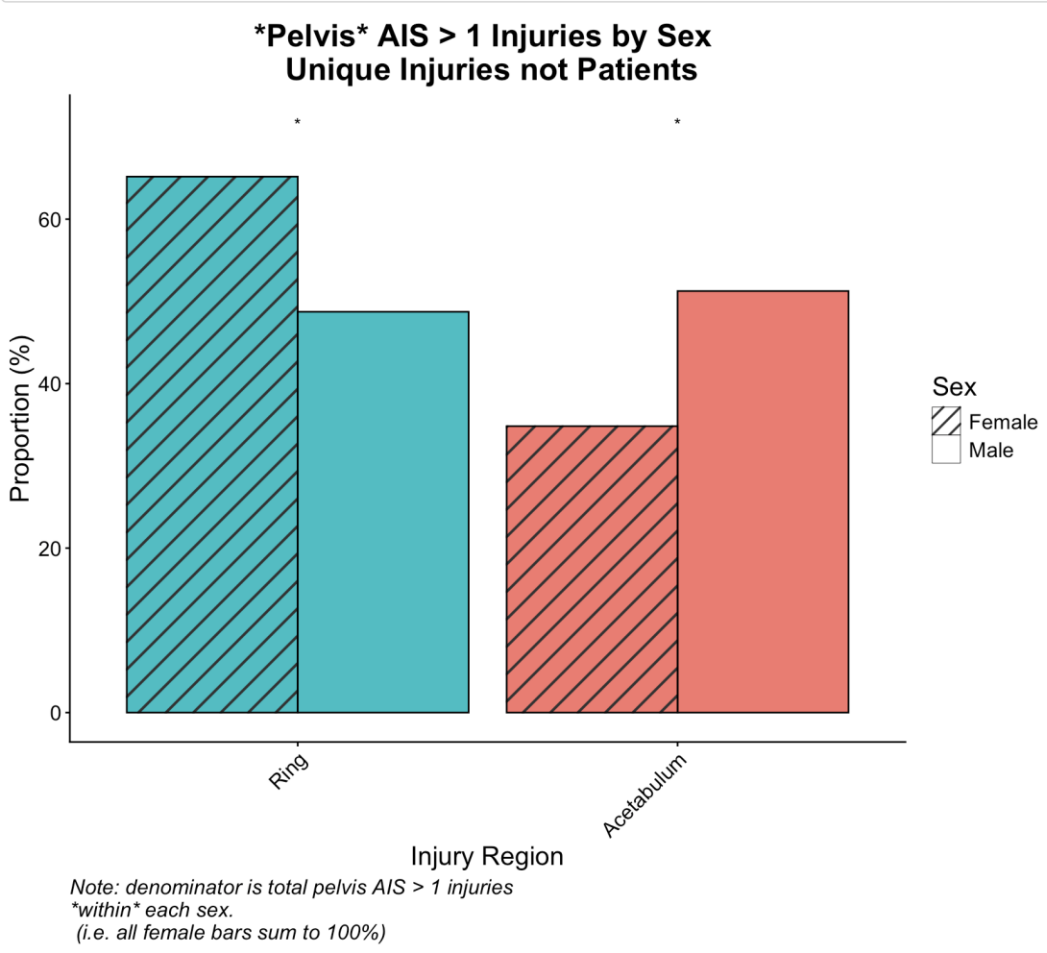
Example Regions



Note: Concussion includes with or without LOC.
Denominator is total abdomen AIS > 1 injuries
**within* each sex.*
(i.e. all female bars sum to 100%)



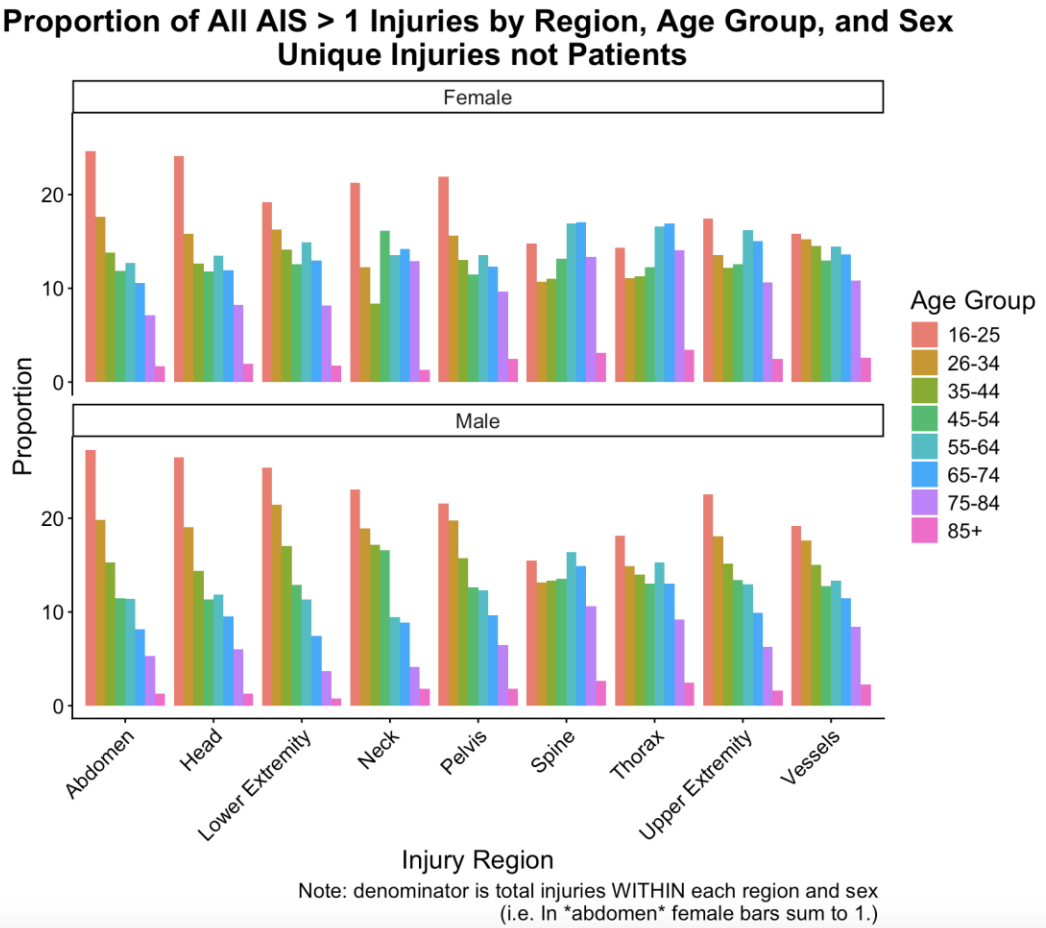
Note: denominator is total lower extremity AIS > 1 injuries
**within* each sex.*
(i.e. all female bars sum to 100%)

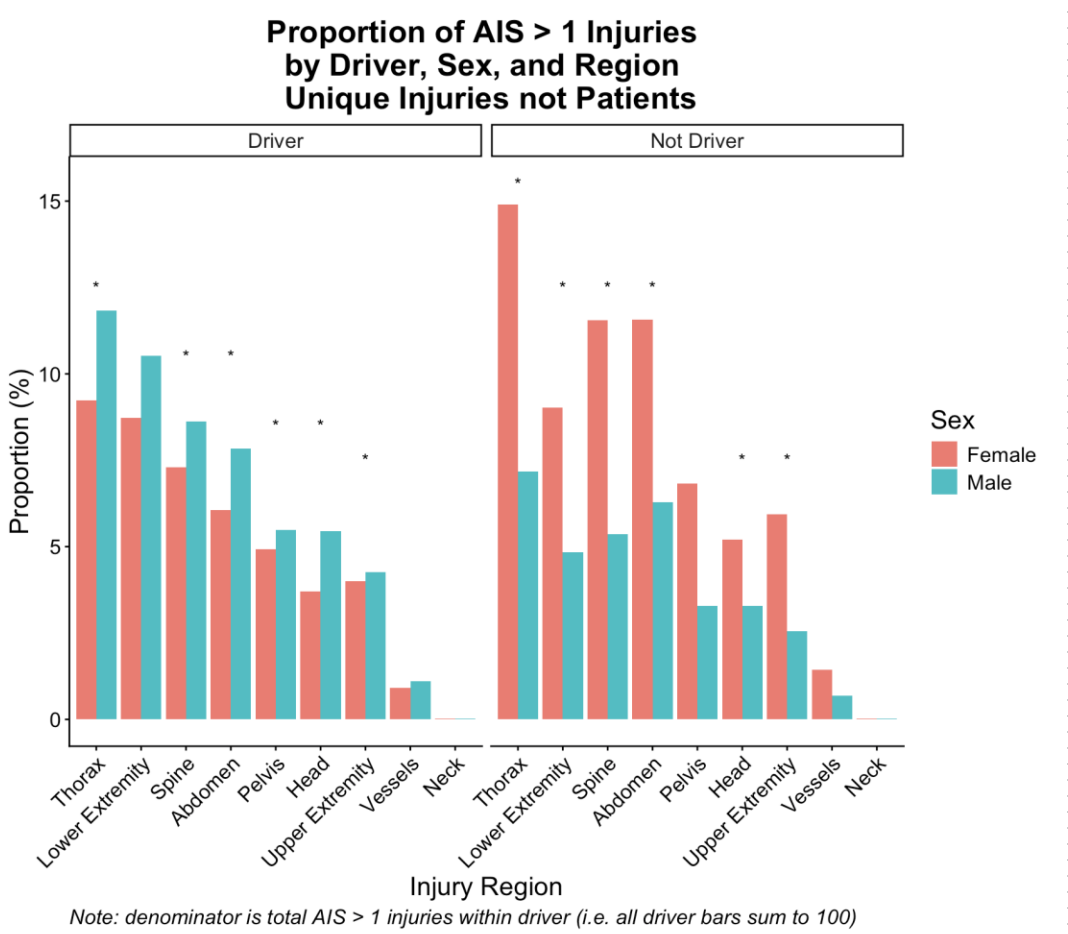


Note: denominator is total pelvis AIS > 1 injuries
**within* each sex.*
(i.e. all female bars sum to 100%)

Pelvic Fractures

Combining Variables

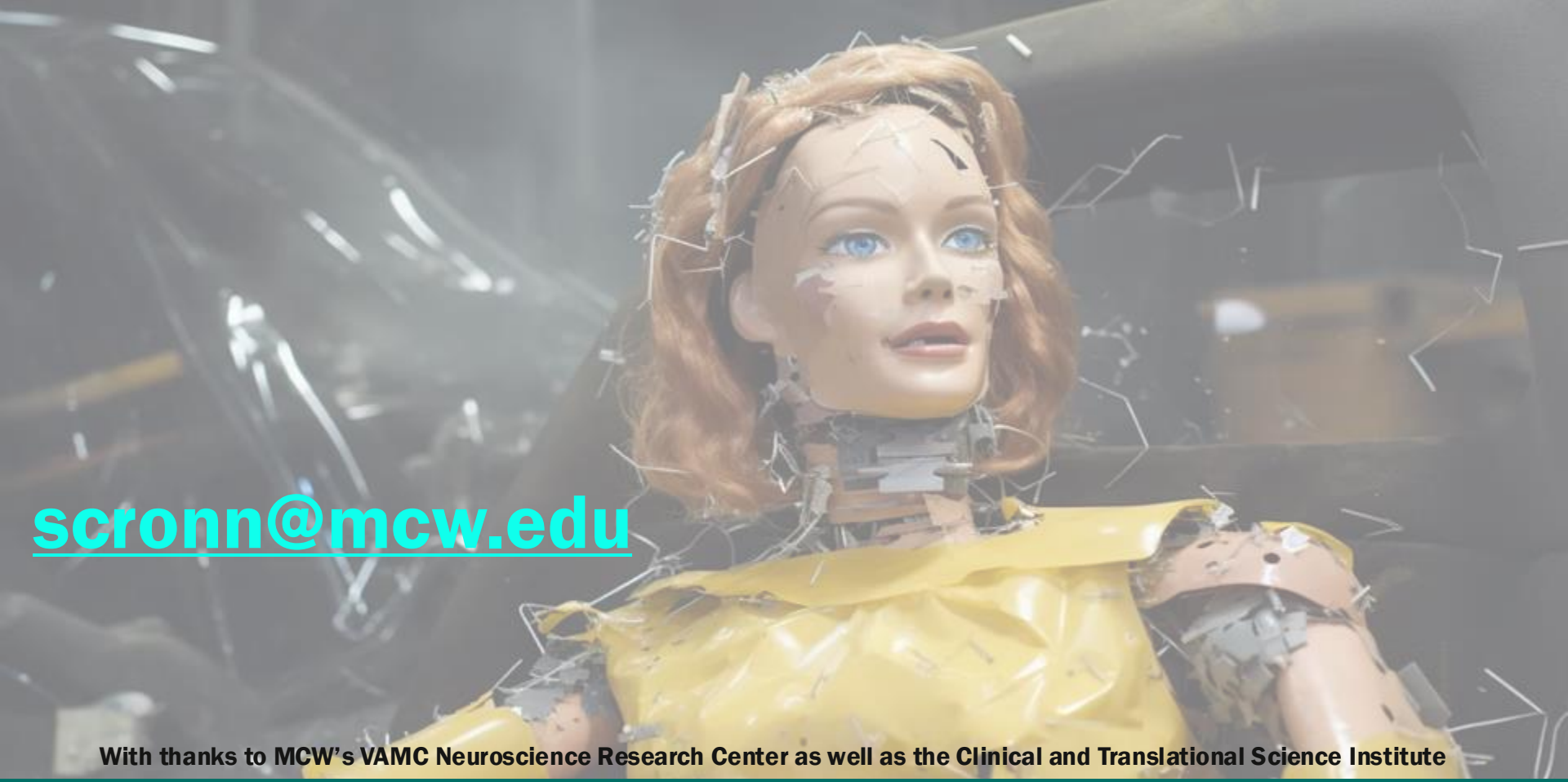




Driver vs Not Driver

Take Aways

- Whose experiences are not represented in your research?
- Why are they missing?
- Who is missing at the table?
- Make the table bigger.



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