

data → US (NASS/CDS or CDS) and EU crashes (multiple different datasets)

model development process →

1. generate injury risk models for front/side crashes and rollovers separately for each of the EU and US datasets

2. develop logistic models and weight cases separately for US and EU datasets

3. decide predictor parameters on significance and AIC

model → logistic model for injury MAS3+; coefficients are shown as below

Variable	EU: frontal/ side	US: frontal/ side	EU: Rollover	US: Rollover
Intercept	− 6.099	− 9.353	− 3.386	− 4.454
Delta-V	0.072	0.075		
Age	− 0.075	0.073	0.014	0.027
Age*Age	0.081	− 0.031		
Far	0.715	− 1.522		
Near	0.759	− 0.353		
Unbelted	0.361	1.498	2.145	0.866
Delta-V*Far	0.037	0.069		
Delta-V*Near	− 0.024	0.050		
Intrusion: minor	0.662	1.249	− 0.835	0.268
Intrusion: major	1.790	1.607	0.447	0.693
PDOF 30	− 0.344	0.141		
PDOF > 30	− 1.692	− 0.509		
Partner: narrow	1.171	1.227		
Partner: wide	2.363	0.789		
Partner: other	1.115	1.036		
Model year 2007 +	− 0.413	− 0.175	0.069	− 0.557
Rural	1.383	0.598	0.385	0.637
Ejection			1.587	1.740
Female			− 0.1576	− 0.0786

More interpretation→

delta-V (log and square transformations considered)

age, age2 (to allow a quadratic relationship)

crash type (front, near side, far side)

belt use (3-point or none)

interactions of Delta-V and crash direction

intrusion (relative to side of impact)

principal direction of force (PDOF) (0, 30, > 30 relative to side of damage)

crash partner (car, narrow, wide, other)

model year group (2003–2006 or 2007+)  
road type

Application→

How to use this model in our application to assess the injury risk of car occupants?

1our data is European rear-end dataset. so we should use the EU frontal model

Question →

our data doesn't contain some parameter information like age. model year group, intrusion, road type and belt use. Could we still use this model based on some assumptions for the unknow parameters?